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CAREERS IN PUBLIC HEALTH SERVICE

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Director for United States, International Health Board, Rockefeller Foundation
NEW YORK

There are certain fundamental questions that should be considered by every young man or young woman intent upon a career. The questions apply with equal force to public health work and to every other vocation. They are:

I. What activities does the field embrace?
II. What is the nature of the work?
III. What opportunities does it offer for immediate employment?
IV. What general and special training is required?
V. What compensation can be expected immediately? Ultimately?
VI. Is the work permanent in character?
VII. What, based on merit, is the outlook with respect to tenure?
VIII. What are the possibilities in the field for earning public recognition?

I. ACTIVITIES EMBRACED

1. *Preventive Medicine Defined.*—The science of preventive medicine, so far as it relates to the individual, is concerned with the normal healthy development of the body; the care and usage it should receive; the conservation of its vital organs; its fortification against diseases; its mental and physical efficiency, and the prolongation of its span of life. As related to the community, the science pertains to the eradication, control or amelioration of the causes of disease and physical decay, and to the removal of conditions favoring them. Its aim, therefore, is primarily preventive rather than curative. It deals with the individual, not as an individual alone, but rather as a member of the community. It regards the community as the real patient whose health and physical welfare must be safeguarded. The work is conducted in the name of the community and for its direct benefit.

2. *Scientific Fields Coordinated.*—As the horizon of our knowledge in this field has broadened, the correct procedure for dealing with each problem has developed with increasing precision, and the tangible results have steadily grown in magnitude—and this, too, at steadily diminishing cost. The scope of the work in all well-organized general health programs covers a wide range of specialized activities. Usually these are grouped under divisions, such as communicable diseases; laboratories—bacteriologic, serologic and chemical; statistics—birth, death and morbidity; sanitary engineering—water, sewage, nuisances; public health education; infant hygiene and child welfare, and so on, varying with the special problems encountered, the amount of financial resources available, and the size of the community to be served. Each division requires workers who have specialized training. The general health organization as a whole accordingly offers employment to clerks, stenographers, accountants, technicians, nurses, statisticians, sanitary engineers, trained scientists—bacteriologists and chemists—and to doctors of medicine who have training in hygiene and sanitation.

II. NATURE OF WORK

3. *Development of Public Health Service.*—The development of a public health service in the more progressive centers of population has followed closely the growth in the knowledge of scientific medicine. In such centers, generally speaking, the public health agencies are organized on a large scale and require a large personnel, including sanitary engineers, bacteriologists, chemists, statisticians, nurses and others who possess special training. Their activities call for administrative guidance by men of broad knowledge and training, who have a thorough grounding in modern medicine.

In other parts of the globe, the developments in public health service have been less rapid. Only within comparatively recent years have its possibilities and its necessity won widespread recognition in these regions. Here, where the work to be done is pioneering in character, the organizations are only in the formative stages, and of necessity the personnel is limited. The service therefore requires primarily the administrative guidance of a physician who is trained in the principles of hygiene and sanitation.

4. *Opportunities for Mass Health Conservation.*—Public health is a vocation that makes a special appeal to those seeking to serve society. It is a field in which much pioneering work remains to be done. Opportunities for service in this field are presented in all age groups. Through infancy, childhood, adolescence, maturity and old age they exist, and they will continue to exist so long as there is a waste of human life and physical capacity from preventable causes. The application of preventive medicine through education, demonstration and intelligent counsel and assistance, as well as through legislation, investigation and research, will ever afford opportunities to those who desire to contribute to human welfare. The physician who specializes in this field does not limit his activities to a small group of persons who, oftentimes through individual or community neglect, become sick or damaged. His sphere extends to hundreds, thousands and even millions who, by virtue of his efforts, may escape or

indefinitely postpone the necessity for curative or repair treatment at the hands of the clinician. He is a wholesaler employed in the service of his country, in the conservation of its greatest asset, good health. The results of preventive medicine to the community are, and always will be, therefore, vastly greater and more beneficial than any results that might be realized from the treatment of the sick.

III. OPPORTUNITIES FOR IMMEDIATE EMPLOYMENT

5. *Present Demand for Administrators.*—Although the wide range of activities embraced within the well-rounded public health organization calls for the employment of large numbers of men and women having varied scientific training, the greatest need is for administrators grounded in medicine and the principles of sanitation, to guide the newer public health services through their formative periods. Because of this need for qualified administrators, this article discusses primarily the opportunities in the field for physicians who have been trained in hygiene and sanitation. It should be emphasized, however, that attractive and useful careers are now open for both men and women in the various branches of the work.

6. *Source of Demand for Health Workers.*—The demand for trained health workers comes from a variety of sources—from the public health agencies, federal, state, county and municipal; from semipublic organizations like the Red Cross, the National Association for the Study and Prevention of Tuberculosis, the American Social Hygiene Association, and the International Health Board; from the public schools, where health inspection and supervision have been undergoing rapid extension, particularly since the war; from child welfare organizations, and from many other agencies, public and private, that have come to look on hygiene and sanitation as essential to any program for improved physical, intellectual and economic efficiency. Industrial corporations, domestic and foreign, are steadily increasing the number of sanitarians they are utilizing for the protection of the health of their employees, for the prevention of unnecessary sickness and death, and for the betterment of social, sanitary and hygienic conditions at the homes of the workers and at the places of employment.

IV. TRAINING REQUIRED

7. *Minimum Training Requirements for Public Health Work.*—Graduation from an approved medical school and hospital training are generally prerequisites for an administrative career in public health work. The necessary special training beyond this minimum may be secured through practical experience or in the courses in public health now offered in a number of universities.[1]

8. *Desirability of Special Training.*—It is impracticable to lay down any hard and fast rule as to standards of training. Ideally, the public health worker needs, as part of his equipment, practical experience and specialized training in those branches of science, legislation and administration on which the science of preventive medicine is founded. But medical men without special training in preventive medicine should not be discouraged from entering public health work, as most of the men who are now leaders in sanitary science were obliged to make their way without other training than that of practical experience. On the other hand, as in any profession, development of professional training facilities has made it possible to master in a relatively short time much of the accumulated knowledge in this field.

9. *Eligibility Requirements of Different Health Agencies.*—The eligibility requirements for staff membership vary somewhat among the different health agencies. For example, the United States Public Health Service requires candidates for its regular commissioned corps to be under 32 and not less than 23 years of age, to have received the degree of medical doctor from a reputable institution, and to have had one year of hospital experience or two years in private practice. In addition, applicants for the federal service must undergo three sets of examinations—physical, academic and professional. The International Health Board requires that appointees to its staff hold academic and medical degrees, be physically fit, be available for service in any country in which the board operates, and have an aptitude for administrative responsibilities.[2] Certain other agencies, including many of the state and county departments of health, are less rigid in their requirements. It should be noted, however, that salary and opportunity usually tend to be commensurate with the qualifications required. It is a safe rule in any field to get as much rather than as little training as possible. Superior training is one of the best guarantees of permanence of tenure and satisfactory compensation.

V. COMPENSATION

10. *General Range of Compensation for Health Work.*—Salaries for public health officers range at present from about $2,000 to $10,000 a year. Certain private agencies and industrial concerns pay more than this maximum to health officers who carry large responsibilities. There is a strong tendency to raise the entrance salary, and this movement is being accelerated by the scarcity of qualified men and the growing appreciation on the part of the public of the importance of expert health service. It is becoming very difficult to secure a man having practical experience for less than $3,000 a year for health work of any kind. The British authorities recently issued an advertisement inviting medical men to apply for appointments in the Ministry of Health at salaries of £1,000, rising to £1,400 per annum, together with pension rights, and other privleges.

General information as to the compensation offered staff members by various health agencies of the United States is given in the following paragraphs.

11. *Salaries in the United States Public Health Service.*—In the United States Public Health Service the salaries of commissioned officers have recently been advanced from 15 to 30 per cent. The new schedule allows an income ranging from approximately $3,000 a year for passed assistant surgeon to approximately $7,000 a year for assistant surgeon-general.[3]

12. *Compensation of State Health Officers.*—In state health work, the compensation scale for the chief executive officer for the year 1919 ranged from $1,000 in Arizona to $10,000 in Pennsylvania. The great majority of salaries lie between $3,000 and $6,000, with a creditable number of states paying $5,000 or more. The salaries for assistant state health officers likewise vary widely, from $1,200 a year in North Dakota to $6,500 a year in Pennsylvania.[3]

1. A list of institutions giving such courses will appear as an appendix in the reprints. Copies of the reprints may be obtained by applying to the author.

2. Details and exceptions will be noted in an appendix to the reprints.

3. Further details will appear as an appendix to the reprints.

13. *Salaries of County Health Officers.*—In the various states in which county health units are in operation, the compensation scale for county health officers ranges from $2,400 to $5,000 a year. A large number of counties are now paying from $3,000 to $3,600, and during the last year quite a number of counties were unable to fill positions at these salaries.

14. *Compensation in City Health Work.*—In city health work, the scarcity of qualified health officers has resulted in the payment of better salaries than were formerly paid. In 1919, cities reported a half dozen or more vacancies for health officers. These positions carried salaries ranging from $4,000 to $6,000 a year.

15.—*Salaries of Instructors in the Science of Public Health.*—Institutions giving courses in public health offer to instructors in this subject salaries commensurate with those paid to teachers of other branches. In some instances the compensation in the department of public health is higher than in other departments. It has proved difficult, however, to secure instructors in public health. At least one place with a compensation of $6,000 remained vacant for many months because a sanitarian qualified to fill it could not be found.

16. *Compensation in Private Health Agencies.*—Among private health agencies—such, for example, as the American Red Cross, the American Social Hygiene Association and the International Health Board—vacancies now exist for men who can qualify for positions carrying, immediately or ultimately, salaries ranging from $2,500 to $7,500 a year.

17. *Salaries of Industrial Health Officers.*—Salaries paid by industrial concerns for the rapidly growing work in industrial hygiene are not, for the most part, made matters of public information. It is known that they vary widely, depending on the size of the plant, the type of service rendered—whether full-time or part-time—and the responsibility of the position. Data collected from a limited number of industries indicate, however, that for full-time health officers in concerns having a thousand or more employees, the compensation ranges from $3,000 to $15,000 a year, with the higher compensation usually going to those health officers who have been able to demonstrate to the management the production value of an effective health program.

18. *Health Centers.*—Among other types of health work for which positions are available are: health centers and similar enterprises involving a combination of health and social work; hospital administration, especially in industry, and medical missionary work of a constructive type, such as is done in China. Demonstration health centers, particularly those for mothers and children, offer a special field for the worker in preventive medicine who is interested in immediate social and educational results. Salaries in this field will generally conform to those paid for the regular types of city and county health work in the more progressive communities.

19. *Hospital Administration.*—Similar in its responsibilities and opportunities to public health service is the work of hospital administration. Salaries of hospital superintendents range from extremely low amounts in some instances to as high as $10,000 a year, with a large number running between $3,000 and $5,000. Assistant superintendents receive salaries ranging up to $6,000.[3]

VI. PERMANENCE

20. *Stability of Public Health Work.*—That such diseases as smallpox, yellow fever, cholera, typhus and plague, with their attendant paralysis of agriculture, industry, commerce, general activities, and sometimes even the functioning of government itself, are no longer ever threatening perils is a tribute to the advances that have been made in preventive medicine, and a guarantee that its practice is established on a permanent basis. The rapid growth of knowledge respecting the nature of disease, the demonstration of the effectiveness of control measures, and the growing appreciation of the fact that the wealth and security of the nation are dependent on the health and physical efficiency of the individuals who constitute it, have developed a wholesome public sentiment favoring the extension and fortification of public health work.

21. *Growth in Available Funds.*—Between 1910 and 1919 the number of commissioned officers in the United States Public Health Service increased from 128 to 218; the number of scientifically trained staff members from 1,350 to 3,746, and the expenditure for professional personnel from $660,620 to $1,778,476. Growth in state and local health work in the same period was even more remarkable. Several Southern states, for example, that appropriated less than $15,000 a year each for health work in 1908 and 1909, are now spending ten times that amount annually. And whereas ten years ago city and county full-time health officers were almost unknown in many parts of the country, they are now becoming numerous, and the appointment of these officers has frequently been accompanied by the establishment of a thoroughgoing health organization to look after the health problems of the community. In at least one state (Pennsylvania) the annual appropriation for health activities has reached the sum of $2,600,000. Everywhere the public health movement has made such headway that the question has ceased to be whether or not the work shall go on, but how fast and how far it can go with the existing limitations in men and means available for the work. The greatest present need is for trained workers; once this is met, progress will be even more rapid than it is now.

VII. TENURE

22. *Tenure of Office.*—Much still remains to be accomplished before the rank and file of health officers everywhere can feel assured of tenure of office on the basis of merit alone. The recent developments in this direction, however, have been gratifying and the outlook is most encouraging. In the federal service the tenure system is firmly established; and in general, qualified health officers throughout the country are holding their places, some of them for long periods of time, quite without reference to political considerations. More enlightened public sentiment with regard to medical standards is fast removing the health officer from politics and guaranteeing him security of tenure during efficient service. Conditions in this respect necessarily vary from state to state and from city to city, but the public health officer has an advantage over other public officials in that the technical nature of his work is readily recognized. In this respect his position resembles that of the city superintendent of schools, who is now nearly always a fairly well-paid, professional executive, specially trained for his work, and not dependent for his position on partisan political consideration.

23. *Old-Age Retirement for Health Workers.*—Another indication of the transition of health work from a political and part-time basis to that of full-time professional service is the adoption of the principle of

retirement allowances for the personnel. The federal Public Health Service provides for the retirement with pensions of officers and employees who have been in its service for a certain period of time. Most of the industrial concerns that have developed health services are among those that already have pension systems as part of their employment policy, so that in such industries, as rapidly as the health officer achieves regular status he becomes eligible for retirement allowances. Similarly, wherever in municipal employ the retirement principle has been adopted, public health officers on full-time basis are eligible for pensions.

VIII. POSSIBILITY OF EARNING PUBLIC RECOGNITION

24. The physician who enters public health work does not relinquish his opportunity to contribute to the sum of scientific knowledge. Public health work offers possibilities for contributions to research that are no less attractive than those offered by other branches of science. Moreover, the coordination of the knowledge already available in the various related fields of health work, and its application to more effective methods for the conservation of health, offer unlimited possibilities. Distinction has been won in both these branches of the public health service, notwithstanding the fact that the field is still comparatively new. The achievements and possibilities are illustrated by the conquest of yellow fever, plague, diphtheria, smallpox, typhoid fever and other diseases that have had widespread distribution. Many other opportunities for distinguished achievements, perhaps equally great, doubtless remain. The medical man on the threshold of his career will recognize that these triumphs of preventive medicine are something more than contributions to science: they constitute a type of service that is becoming universally recognized as fundamental to world progress.

61 Broadway.

A COMPARISON OF RECTAL WITH COLON INJECTIONS OF EPINEPHRIN

WITH REFERENCE TO PRESSOR EFFECTS AND TO GLYCOSURIA *

HENRY G. BARBOUR, M.D.
AND
FREDERICK H. RAPOPORT, M.D.
NEW HAVEN, CONN.

Although drugs used for their systemic action are frequently given by rectum, distinctions between the results of high (colonic) or low rectal administration apparently have not been sought. The significance of such a discrimination lies in the anatomic fact that absorption from the terminal portion of the mammalian intestine takes place by way of the middle and inferior hemorrhoidal veins directly into a branch of the vena cava. The colon, on the other hand, is drained by the portal system; before the general circulation is reached, a barrier is interposed by the liver and its capillaries. The two extremes of the alimentary canal present its only absorption areas where such protection is not afforded.

Epinephrin was selected for a comparison of colonic and of rectal administration for a number of reasons. At the time (1916) of carrying out the experiments herein described, the literature apparently contained no reference to the administration of this drug by rectum; it had been assumed that it would be ineffective because of its failure to act when given by stomach.[1]

TABLE 1.—EFFECTS OF EPINEPHRIN ON THE BLOOD PRESSURE, ESPECIALLY OF COLON AND RECTAL INJECTIONS

Exp. No.	Time	Epinephrin Dosage per Kilogram, Mg.	Site of Injection	Blood Pressure Before Mm. Hg	Blood Pressure After Mm. Hg	Difference, Maximum Mm. Hg	Time for Maximum Effect, Seconds
1	10:33 a.m.	0.5	Colon	100	111	11	240
	11:11	0.5	Subcut.	98	110	12	90
	11:39	1	Colon	80	92	12	340
	12:07 p.m.	1	Subcut.	80	87	7	112
2	3:40 p.m.	1	Subcut.	96	106	10	111
	4:01	1	Colon	—	—	0	...
	4:18	1	Colon	88	92	4	220
	4:45	1	Rectum	104	116	12	115
	5:45	1	Rectum	112	120	8	220
	6:05	0.5	Rectum	102	104	2	65
		1	Rectum	98	116	18	75
		1	Rectum	44	72	28	45
3	11:15 a.m.	1	Rectum	90	104	14	165
	11:50	1	Colon	82	88	6	150 (Fig. 1)
	12:30 p.m.	1	Rectum	72	76	4	100
	12:50	1	Subcut.	76	86	10	100
	1:00	1	Subcut.	—	—	0	...
	1:15	1	Rectum	—	—	0	...
	1:27	0.4	Vena cava	72	128	56	50 (Fig. 2)
	2:10	0.9	Rectum	74	92	18	160 (Fig. 3)
	2:35	1	Colon	—	—	0	...
	3:15	1	Rectum	80	94	14	30
4	12:12 p.m.	1	Rectum	64	74	10	235
	12:40	1	Colon	—	—	0	...
5	11:50 a.m.	1	Rectum	74	79	5	1,225
	12:25 p.m.	1	Colon	58	60	2	350
	2:18	1	Rectum	48	58	10	340
	4:15	1	Colon	58	68	10	319

Auer and Gates [2] showed, however, that epinephrin given intratracheally produces a definite blood pressure rise, and we saw no reason why it could not be similarly effective after passing through the rectal mucosa; thus given it might prove of value as a circulatory stimulant under some conditions. The prediction was verified as soon as the work was begun, and the fact has since been confirmed independently by Binet,[3] who describes epinephrin as "innocuous by stomach but very toxic by rectum," as well as by Hoskins.[4]

Another reason for selecting epinephrin for study was the fact that it exerts a specific effect on the liver in that the glycogen is mobilized from that organ by subcutaneous injections of the drug, producing the well-known glycosuria. It was considered possible, therefore, that while rectal as compared with colonic administration might exhibit a greater circulatory effect, the glycosuria would, on the other hand, be found less intense, owing to the delay and quantitative diminution of the drug in reaching the liver.[5]

These conjectures were confirmed in the two series of experiments on rabbits reported below. The first series deals with the effects of the respective injections on the blood pressure, the second, on the carbohydrate metabolism.

I. THE BLOOD PRESSURE EFFECTS

In the preliminary experiments, epinephrin was introduced into the colon of rabbits under urethane by means

* From the Department of Pharmacology, Yale University School of Medicine.
* The expenses of this research were defrayed from the Francis E. Loomis Research Fund of the Yale University School of Medicine.

1. Herter, C. A., and Wakeman, A. J.: Tr. A. Am. Phys. **17**: 570, 1902.
2. Auer, J., and Gates, F. L.: J. Exper. Med. **23**: 757 (June) 1916.
3. Binet, L.: Presse méd. **25**: 191, 1917.
4. Hoskins, R. G.: Proc. Soc. Pharmacol. & Exper. Therap., 1920.
5. It must be borne in mind that under normal conditions some of the rectally injected drug can find its way directly to the portal system through the superior hemorrhoidal vein which anastomoses freely with the middle and inferior hemorrhoidals. On the other hand, no solution absorbed in the colon could be expected to find its way to the vena cava backward through the hemorrhoidal plexus.

of a catheter which had been passed over a distance of 26 cm. It was found that 1 c.c. of commercial adrenalin chlorid, 1:1,000 diluted to 5 c.c. with distilled water, produced a rise of blood pressure appreciably greater than that produced by 5 c.c. of distilled water given similarly at the same temperature. To compare the effects of colon with rectal injections, the following technic was then pursued:

A rabbit fasted twenty-four hours previously was given from 1.5 to 2 gm. per kilogram of urethane by mouth. After the onset of anesthesia it was secured to the table and a midline incision made in the abdominal wall just above the symphysis pubis. The sigmoid-rectum was doubly ligated at about 5 cm. above the anus, the vessels being included. Intestine and vessels were then cut transversely between the ligatures. Blood from the intestine below this point of separation drained therefore into the systemic veins, while that above it was carried directly into the portal system. The intestinal contents in the neighborhood of the experimental field were removed. Glass cannulas 1 cm. in diameter were inserted, one in each portion of the bowel, and when the abdominal wall was sewed up these were allowed to emerge and labeled, respectively, "colon" and "rectum." The injections were made at body temperature through these cannulas. Blood pressure was recorded from the carotid artery. Injections were made at rather long intervals, time being allowed for complete absorption of one before giving another, as well as for complete return of the blood pressure to normal.

In Table 1 will be seen a summary of the results of five such experiments. A number of the experiments were controlled with similar injections of distilled water or of saline solution, none of which gave significant changes. A number of subcutaneous and intravenous injections of epinephrin are included in the table for comparison.

In Figures 1, 2 and 3 are illustrated, respectively, the results of colon, vena cava and rectum injections in Experiment 3. Table 2 presents a comparison of the effects of rectal and colon injections when a standard dose of 1 mg. per kilogram was employed.

SUMMARY OF RESULTS ON BLOOD PRESSURE

1. An injection of 1 mg. of epinephrin per kilogram caused greater increases in the blood pressure of rabbits when given by rectum than when injected into the colon. The average blood pressure increase after rectal injections was 11.5 mm. of mercury; after colon injections, 4.2 mm. of mercury.

2. The highest rise of blood pressure observed in all of the experiments, due to an injection of 1 mg. of epinephrin per kilogram into the rectum, was 28 mm., while the highest rise from a similar amount into the colon was 12 mm.

3. The earliest effect on the blood pressure after the epinephrin was injected into the rectum was seen in thirty seconds, whereas the earliest effect after an injection into the colon was seen in 150 seconds.

4. The average time necessary for a maximum effect on the pressure after the rectal injections was 141 seconds; after the colonic injections, 275.8 seconds.

II. EFFECTS ON THE AMOUNT AND SUGAR CONTENT OF THE URINE

In the metabolism experiments rabbits also were used, the procedure being as follows:

After a period of twenty-four hours' fasting the rabbit's bladder was emptied by exerting pressure over the suprapubic region and the urine thus obtained was determined to be sugar-free. The lower end of the colon and rectum was emptied by exerting pressure over the left iliac fossa. The animal was then given 100 c.c. of water by mouth. A rubber catheter was used for the epinephrin injections. This was inserted for a distance of 16 cm. for the colon injections and held in position at least ten minutes after the drug had been given, by which the fluid was practically prevented from escaping to the lower portion of the bowel. For rectal injections the tubing was inserted a distance of 5 cm. and held in

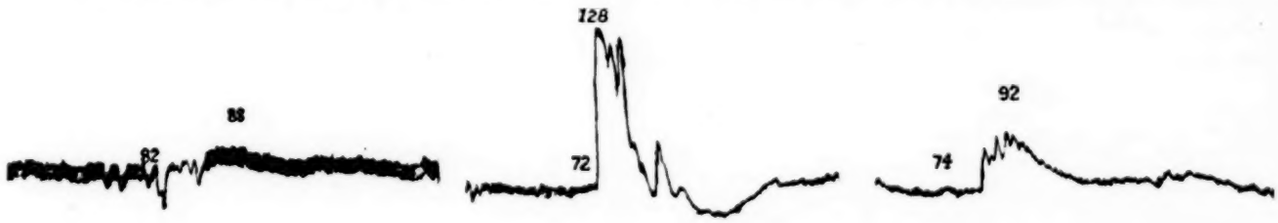

Fig. 1 (Experiment 3).—Upper line, carotid blood pressure; middle line, base line; lower line, time in 5 seconds intervals. Injections of 1 mg. of epinephrin per kilogram into colon (11:50 a. m.).

Fig. 2 (same experiment and conditions as Figure 1).—Effect of 0.4 mg. of epinephrin per kilogram injected into vena cava (1:27 p. m.).

Fig. 3 (same experiment and conditions as Figure 1).—Injections of 0.9 mg. of epinephrin per kilogram into rectum (2:10 p. m.).

TABLE 2.—COMPARISON OF RECTAL AND COLON INJECTIONS OF A STANDARD DOSE

Colon Injections		Rectal Injections	
Blood Pressure Rise, Mm. Hg	Time for Maximum Effect, Seconds	Blood Pressure Rise, Mm. Hg	Time for Maximum Effect, Seconds
..	...	12	115
12	340	8	220
0	...	2	65
4	220	18	75
6	150	28	45
0	...	14	165
0	...	4	100
2	350	0	...
10	319	18*	160
		14	30
		10	235
		10	340
Average 4.2	275.8	11.5	141

* Nine-tenths milligram per kilogram.

place for a similar length of time, after which the anus was closed with a small serrefine.

The urine was collected by twenty-four hour periods and preserved with toluene. In only one or two cases was sugar present after the first twenty-four hours. The sugar estimation was made by the Pavy-Ramsden method.

The results of the administration of 0.5 mg. of epinephrin per kilogram under these conditions are given in Tables 3 and 4. It is evident that colon injections were more effective both as regards the total urine output and the amount of sugar excreted, the latter being practically twice as much as after the rectal injections.

TABLE 3.—EFFECTS OF COLON INJECTIONS ON THE AMOUNT AND SUGAR CONTENT OF THE URINE

No. of Animal	Weight, Gm.	Urine		Time in Hours Until Sugar-Free
		Volume, C.c.	Dextrose, Gm.	
48	1,577	160	0.277	48
14	2,438	140	0.175	24
5	2,025	143	0.097	24
40	1,558	105	0.084	24
54	1,330	125	0.208	24
160	2,850	125	0.120	24
170	2,650	200	0.148	24
Averages		142.5	0.158	

TABLE 4.—EFFECTS OF RECTAL INJECTIONS ON THE AMOUNT AND SUGAR CONTENT OF THE URINE

No. of Animal	Weight, Gm.	Urine		Time in Hours Until Sugar-Free
		Volume, C.c.	Dextrose, Gm.	
19	1,800	53	0.000	00
11	1,885	275	0.000	00
27	1,585	115	0.115	24
34	1,975	118	0.048	24
30	1,600	95	0.119	24
33	2,270	77	0.175	24
34	1,750	115	0.153	24
6	1,778	112	0.121	24
70	1,070	125	0.069	24
Averages		120	0.088	

SUMMARY OF EFFECTS ON THE CARBOHYDRATE METABOLISM

1. Colon injections of epinephrin in rabbits gave more profound glycosuria and diuresis than rectal injections.

2. The average amount of dextrose obtained from injecting 0.5 mg. per kilogram into the colon was 0.158 gm., while from the rectal injection it was 0.088 gm.

3. The greatest amount of dextrose obtained from the injection of 0.5 mg. of epinephrin into the colon was 0.208 gm., while the greatest amount obtained from a rectal injection was 0.121 gm.

4. The average twenty-four hour urine volume after injecting 0.5 mg. epinephrin per kilogram into the colon was 142.5 c.c.; after injection into the rectum it was 120 c.c.

CONCLUSIONS

1. Epinephrin is absorbed both from the rectum and from the colon in rabbits.

2. Injected into the rectum, epinephrin causes a greater rise in blood pressure than when injected into the colon.

3. When epinephrin is injected into the colon, it causes a greater degree of glycosuria and diuresis than when injected into the rectum.

Shortcomings of Auscultation.—The physical examiner is wont to overestimate the depth beneath the chest wall to which percussion and auscultation extend their informing signs. The localization of the source of morbid signs by auscultation is often a difficult or impossible procedure.—H. Sewall, *Am. Rev. Tuberc.* **4**:823, 1921.

THE MANAGEMENT OF THE URINARY TRACT OF PARAPLEGIC PATIENTS*

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In severe cord injuries, one of the most frequent complications is infection of the urinary tract. The infection is difficult to treat and often proves to be a potent factor in hastening the death of the patient.

Before the war, when cases of cord injuries were not commonly seen in groups, it was more or less casually admitted that infection of the urinary tract would eventually take place, though the treatment of the bladder in these cases was in no way standardized or especially considered. With the exception of the advice of Sir Victor Horsley, who, several years ago, advocated the drainage of the bladder in cases of cord injury in which there were badly infected urinary tracts, no outstanding consideration of the subject is found in the literature until after the advent of the recent war. One of the first notes sounded at that time was by F. A. Besley,[1] who strongly advocated noncatheterization of the bladder as a routine in these cases, and insisted that catheterization of the urinary bladder was usually closely followed by infection of the bladder, with subsequent involvement of the upper urinary tract. Besley advised allowing the bladder to overflow and then regularly to assist its emptying by manual expression of its contents by pressure on the lower abdomen.

In connection with this treatment of the bladder, Col. Andrew Fullerton[2] studied the bladder by cystoscopy in a group of cases of cord injury with lesions at different levels. He observed that the urine was discharged from the ureteral orifices in jets, and that the ureteral orifices contracted and relaxed as in normal bladders and that the tone of the ureterovesical sphincter was maintained. As to the regurgitation of the bladder contents into the ureter when manual expression of the urine from a distended bladder was practiced, Fullerton made a cystoscopic examination of such a patient, with the bladder filled until it reached the level of the umbilicus. Even while marked external pressure on the bladder was being exerted the ureters discharged their contents normally in jets. It must be remarked in this connection that regurgitation of bladder contents has been studied under many conditions. It can take place in normal undilated bladders.[3] On the other hand, it does not necessarily take place in distended bladders.[4] The regurgitation appears to be controlled by a reflex governing the action of the ureterovesical orifice, which is not entirely understood.

At practically the same time that manual expression of the bladder was being advocated in this type of case, J. W. Thompson Walker[5] advocated very strongly treating the incontinent bladder by cystostomy. He states that in 90 per cent. of the war cases of spinal injury there was bladder or kidney infection and that 45 per cent. of the mortality in these cases was due to urinary infections.

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1. Besley, F. A.: A Plea for Noncatheterization of the Urinary Bladder in Cases of Gunshot Wounds of the Spinal Column, J. A. M. A. **69**: 638 (Aug. 25) 1917.
2. Fullerton, A.: Brit. M. J. **1**: 124 (Feb. 1) 1919.
3. Kretschmer: Surg., Gynec. & Obst. **22**: 209, 1917.
4. Guyon and Albarran: Arch. de méd. expér. et. d'anat. path. **2**: 181, 1890. Lewin: Arch. f. exper. Path. u. Pharmakol. **40**: 287, 1897. Lewin and Goldschmidt: Arch. f. path. Anat. **134**: 33, 1893. Courtade and Guyon: Ann. d. mal. d. org. génito-urin. **12**: 561, 1894.
5. Walker, J. W. T.: Lancet **1**: 173 (Feb. 3) 1917; Brit. M. J. **1**: 393 (March 29) 1919.

These statements precipitated quite an argument in the British medical press during 1918 and 1919. Percy Sargent [6] also advocated cystostomy. He stated that he had never seen a paraplegic patient with bladder function in abeyance for two days, who had sterile urine. He expresses his doubt as to the efficacy of "expression." Vellacott [7] states on the other hand that in cases in which no catheter had been passed, the urine usually remained clear. Two of his ten patients developed *B. coli* infection of the urinary tract. Sherrington is quoted as saying that he rarely saw an infection of the urinary tract in noncatheterized laboratory animals with cord lesions. Fullerton [2] and Forbes Fraser [8] say that cystostomy was tried early in the war and was abandoned, owing to difficulty in nursing and discouraging reports from the base.

At this point, where the differences between the advocates of manual expression and cystostomy in this type of case have been emphasized, the striking work of Head and Riddock [9] and Sherrington on automatic emptying of the bladder must be interjected.

Sherrington observed that after transection of the cord in cats and dogs, a primary distention of the bladder, associated with some contraction at the neck of the bladder, took place, and later relaxation of both the neck and fundus of the bladder occurred, and manual expression of the urine became easy. After a lapse of a few days, the bladder musculature contracted slightly, particularly after perineal irritation, and small jets of urine were expressed by these contractions of the bladder wall. The bladder, however, never completely emptied itself, and residual urine was always present.

In the study of bladder reflexes in patients with cord lesions during the war, Head and Riddock described much the same phenomenon of automatic bladder emptying, which they believed to be due to a mass reflex. With complete section of the cord, regardless of site, the bladder begins automatically to expel its contents as early as the twenty-fifth day, provided conditions are favorable and cystitis, bedsores, etc., have not appeared, in which event the automatic emptying may never appear. To establish automatic emptying of the bladder, Head and Riddock advocated the passage of a catheter and injection of from 100 to 600 c.c. of fluid into the bladder until the detrusor mechanism is stimulated and the musculature contracts. The exact amount of fluid pressure in the bladder necessary to excite a reflex emptying can thus be ascertained. Injection of this amount on subsequent occasions finally establishes reflex emptying when the bladder is filled to the known point. Later the same result may be obtained, without the passage of a catheter, by exciting the flexor stimuli on the paralyzed side (stroking the thigh or plantar stimulation) when the sphincter is inhibited, and the bladder will expel a considerable proportion of its contents but will not completely empty itself. After the automatic reflex has been established, deep breathing or pressure on the abdominal wall may induce a partial emptying of the bladder. If the lumbar or sacral roots are destroyed the automatic emptying may occur, but it cannot be induced by exciting external stimuli. If the lesion is confined to the lower spinal cord or lumbar or sacral roots, the patient may be conscious of tension in the bladder, he may recognize contraction of the bladder wall or even experience the pleasure of micturition, but these sensations have no effect on automatic activity of the bladder.

Frank Kidd [10] has observed automatic emptying of the bladder in partial lesions of the cord after fourteen days, in complete lesions after from twenty-one to twenty-eight days, and in sacral lesions after from three to four months. He stresses the point, as does Head and Riddock, that overdistention of the bladder is very detrimental to the establishment of automatic emptying. He advocates an indwelling catheter to obviate this.

We are, therefore, confronted with several divergent views as to what constitutes the underlying principles of treatment of the bladder in severe cord lesions. The principle of intermittent drainage of the bladder by repeated catheterization must be faced with the certainty of cystitis, which sooner or later leads to an infection of the upper urinary tract. Under this treatment, the patient is subjected to the high mortality quoted by Walker.

The establishment of a paradoxical incontinence and subsequent manual expression of the urine, as proposed by Besley, offer safety to the patient in that cystitis is not provoked by catheterization. It is not ideal because the bladder may become greatly distended before manual expression is successful, and this interferes with the establishment of a reflex periodic emptying of the bladder as described by Head, Riddock and Sherrington. It is also deficient as a treatment per se because by it the bladder is not completely emptied. This is most important in patients who may secrete organisms into the urinary tract from the blood stream and thereby set up an infection of the residual urine in the bladder. This point will be particularly considered later.

The third principle of treatment by the establishment of a periodic reflex emptying of the bladder is also a valuable one provided the urinary tract is not infected. Head and Riddock advocate passage of a catheter and distention of the bladder with fluid up to a point where intravesical pressure is sufficient to establish reflex emptying of the bladder. This has the decided disadvantage of probable infection of the bladder with consequent cystitis. Another factor of great importance is that the bladder never completely empties itself by periodic reflex micturition, so that some residual urine is always present in the bladder. This urine is subject to infection by catheterization or by blood stream with resultant cystitis and its complications.

To summarize: Catheterization leads to the establishment of cystitis with eventual ascending infection. Manual expression entails a dilated bladder or at least residual urine, but is safe unless blood stream infection of the urinary tract occurs. Periodic reflex urination is ideal in many ways, but is established from two to four weeks after the cord injury; it never completely empties the bladder and is best established by catheterization of the bladder. This is a serious defect if infection is introduced by catheter or comes through the blood stream.

The fourth principle of treatment is that of continuous drainage of the bladder by indwelling catheter or cystostomy. The indwelling catheter is impracticable, as a long continued treatment, for the obvious and well known difficulty of maintenance and the causation of pressure necrosis at the neck of the bladder. Cystostomy has the outstanding virtues of constant

6. Sargent, P.: Brit. M. J. **1**: 357 (March 22) 1919.
7. Vellacott, P. N.: Lancet **1**: 733 (May 3) 1919.
8. Fraser: Brit. M. J. **1**: 293 (March 8) 1919.
9. Head, H., and Riddock, G.: Brain **40**: 188 (Nov.) 1917; Brit. M. J. **1**: 457 (April 20) 1918.
10. Kidd, F.: Brit. M. J. **1**: 397 (April) 1919.

drainage with absence of residual urine and prevention of dilatation of the bladder. These advantages are offset by the necessity of operative procedure, the increased difficulty of nursing and the certainty of infection of the bladder.

AUTHOR'S EXPERIMENTS

To understand more clearly the relation of infection of the urinary tract to cord lesions, a number of experimental conditions were established in dogs. It was attempted to study: (1) the effect of introduction of organisms into normal bladder as compared to their injection into a bladder with residual urine, and (2) the effect of infection on cystostomized bladders as well as the spread of infection from such bladders to the upper urinary tract.

In a former article [11] it was shown that organisms introduced into the bladder under varying conditions involved only the upper urinary tract, by passage of the organisms from the bladder to the kidney through the lumen of the ureter and not by involvement of the blood stream or ureteral lymphatics. This phase of the subject will not be considered in the experimental work which follows.

Dogs were used exclusively, and *B. coli* was the organism selected for injection.

1. *B. coli* injected into the normal dog's bladder can be found in the bladder urine as long as thirty-four days after its injection. Macroscopic and microscopic evidence of infection of the bladder and upper urinary tract is absent in practically all instances. In only three of nine dogs so injected, was *B. coli* found culturally in the pelvis of the kidney. These experiments lasted from four to thirty-four days. It is, therefore, evident that the mere presence of *B. coli* in a normal bladder does not usually cause cystitis or involvement of the upper urinary tract, though the organisms may be found by culture of the bladder urine from four to thirty-four days after the injection into the bladder.

2. Injection of organisms into a bladder containing residual urine gives very different results. In eleven dogs, the urethra was partially constricted by silk; but in no instance was sufficient constriction caused to prevent urination. Complete emptying of the bladder, however, was interfered with. Into these bladders, *B. coli* was injected. An acute ulcerative cystitis developed in from twenty-four to thirty-six hours, and not only were *B. coli* isolated from the bladder urine, but they were also grown in pure culture from the kidney pelvis and ureter in ten of the eleven dogs. Blood stream infection was not present.[11] These results are in sharp contrast to the experiments in which *B. coli* was injected into the normal dog bladder, and ascending infection and cystitis were uncommon.

If these results can be applied to the treatment of the urinary tract in cord lesions, it would appear that residual urine is of uncommon importance if microorganisms are introduced or are secreted into the urinary tract. Manual expression of urine or automatic emptying of the bladder is ideal when infection is absent. However, as soon as residual urine becomes infected, cystitis rapidly develops and an extension of the infection to the upper urinary tract takes place. At this point, manual expression fails in its mission, as does automatic emptying of the bladder, because complete emptying of the bladder is not obtained in either case.

3. In a series of eight dogs, the spinal cord was divided in the lower thoracic region and an attempt was made to empty the bladder several times a day by manual expression. This was found to be unnecessary, for after forty-eight hours the animals were able to urinate spontaneously as the reflex arc controlling the bladder was apparently not completely destroyed by cord section. It was of interest to note that the bladder urine was sterile when the back wound remained clean. In the experiments in which an infection of the back took place, the same organisms were found in the urine as were present in the wound. This secretion of organisms into the urine from the blood stream from extraurinary foci is well known, but has an added importance in the subject under discussion.

4. Complete occlusion of the urethra, suprapubic cystostomy and injection of *B. coli* into the bladder were carried out in eight dogs. With only partial occlusion of the urethra, we have seen that severe cystitis and ascending infection rapidly develop, so under even more severe conditions of complete occlusion of the urethra, the value of cystostomy in this class of cases was tested. The urethra was occluded by silk. The cystostomy was performed by suturing the mucosa of the bladder to the skin, making an aperture into the bladder of from 1 to 1½ inches. In only two experiments was *B. coli* isolated from the ureters or kidney pelves. In one of these experiments, the cystostomy opening was very small and inadequate. This is about the proportion of involvement of the upper urinary tract occurring when *B. coli* is injected into normal bladders without obstruction. Although *B. coli* was repeatedly injected into these cystostomized bladders, at postmortem, from five to eighteen days later, the bladder mucosa was not found to be the seat of an ulcerative or even marked cystitis, except at the point where the mucosa was sutured to the skin. There an inflammatory reaction was present for about 2 cm. from the mucocutaneous junction. Microscopic sections through this region showed an acute inflammation, but in the fundus and trigon, sections showed very slight inflammatory reaction. When it is considered that these dogs were allowed to run loose in the laboratory dog room and were subject to infection by contact of these cystostomy openings as well as by injection of *B. coli* into the bladder, it is remarkable that more inflammation of the bladder mucosa was not present.

These experiments emphasize the importance of infection of residual urine in relation to ascending infections of the urinary tract, and the apparent efficacy of cystostomy in prevention of ascending infection in obstructed infected bladders. How efficient cystostomy would be in relief of infection already established is problematic and would depend to a large extent on the damage already done. It would seem to be well worth trying, if for no other reason than its great and proved value in treatment of upper urinary tract infections in cases of chronic urinary obstruction from hypertrophied prostate.

In estimating the value of the procedures offered for the care of the bladder in paraplegics, it would seem that in early cases without urinary infection the use of the catheter should be absolutely contraindicated and that the relief of the bladder distention should be overcome by manual expression of the urine. This failing, paradoxical incontinence will be established. If manual expression is eventually successful and can be maintained without incidental infection of the urinary tract through the blood stream, it is within reason to believe that a periodic automatic emptying of the bladder may be established and perhaps induced by the attempts at

11. David, V. C.: Surg., Gynec. & Obst. **26**: 159 (Feb.) 1918.

manual expression. The two methods of treatment should be favored indefinitely, provided a urinary tract infection does not occur. In the event of such infection, and this is not at all unlikely in gunshot injuries of the spine with infected wounds or in patients with other foci of infection, the situation is entirely changed. It is at this juncture that we have infected residual urine, and cystostomy is the procedure to be employed, making a relatively large opening into the bladder and establishing constant drainage by siphonage.

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PIONEERS IN EMBRYOLOGY *

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How living things are generated is a question of universal interest which has attracted attention since ancient and even prehistoric times. So far as we know, however, the Greek philosophers were the first to make a systematic study of embryology. Among these, Aristotle (B. C. 384-322) was preeminent. Like Hippocrates, his immediate predecessor, he was descended from a line of physicians, from whom he may have inherited a taste for science. Aristotle was a pupil of Plato, but differed from him fundamentally in his attitude toward philosophy. Plato was an idealist, who relied mainly on intuition, while Aristotle was a realist, and held that observation is the proper basis for knowledge. This view, now a commonplace of science, but then a novel idea, was emphasized by Aristotle thus: "One must believe the observation rather than the theory, and the latter only when it is in agreement with the facts observed."

THE WORK OF ARISTOTLE

Aristotle was a teacher of Alexander the Great, and had influence at court. In order to make an extensive study of animals, he obtained from his royal patron a grant of a large sum, 800 talents, or the equivalent of about $200,000. This is interesting as perhaps the first governmental subsidy for scientific investigation on a large scale. Aristotle used this amount in employing numerous research assistants who traveled over the known world (the regions encircling the Mediterranean), collecting specimens and gathering information from farmers, hunters, fishermen and all who knew anything about animals.

Thus, Aristotle was able to collect a relatively large amount of data for study. In addition to original observations, he also compiled the views of his predecessors, and even at that time refers to the opinions of "the ancients." For while the period of some twenty-two centuries since Aristotle seems a long time, we must not forget that a much longer preceding period had been required to accumulate slowly the small stock of common knowledge then available. Through his own observations and efforts, Aristotle was able to extend greatly this knowledge, and to establish the science of biology.

His biologic work is embodied chiefly in three books: "History of Animals," [1] "On the Parts" and "Generation of Animals." [2] The "History of Animals" is a classic which should be read by every student in biology and medicine. It contains in briefer form his views on embryology. They are elaborated more fully in the "Generation of Animals," which was the first systematic treatise on embryology. We shall refer briefly to some of his principal results in order to give an idea of the scope and character of Aristotle's work in embryology.

Some 500 species of animals (chiefly vertebrates) are mentioned by Aristotle, and his descriptions in many cases include observations on their mode of reproduction. He recognized among animals two fundamentally different methods of reproduction, which we now designate as biogenesis and abiogenesis. Abiogenesis, or spontaneous generation of living things from lifeless matter was a universal belief at that time, and was thought to occur, by the action of air and warmth on slime, etc., not only among the lower forms of life, but also among vertebrates, such as eels, frogs, and even small mammals. This view seemed to be proved beyond question by everyday experience and even by careful observations.

Aristotle mentions, for example, certain marshy ponds which dried up, and in which eels appeared when the ponds were again filled with water by the rains. Such evidence appeared to him conclusive proof of spontaneous generation, a doctrine that has persisted among the uneducated throughout all ages down to the present day. Even among scientists, abiogenesis was practically unquestioned before the time of Redi, in the seventeenth century, and only after 200 years more of controversy was it definitely disproved by the classical experiments of Pasteur. Even now, many biologists believe that abiogenesis of protoplasm is at least a theoretical possibility, which some day may be successfully accomplished by artificial means.

Aristotle recognized biogenesis, the reproduction of life from living beings, as the prevailing method. He also observed that in some species this might occur asexually (by budding or by parthenogenesis), although the sexual method is usual among the higher animals. The essential principle of the sexual method, the union of male and female elements to form a new organism, was of course already well known. Aristotle studied the process carefully in various species, and classified animals into the oviparous, or egg-producing, including most forms below mammals, and the viviparous, or live-producing mammals. He even noted an intermediate form ovoviviparous, in some elasmobranch fishes, an observation apparently not confirmed until the time of Johannes Müller, more than 2,000 years later.

Unfortunately, Aristotle classified the cocoons of the insect pupae as eggs, a mistake that later misled even Harvey, and give rise to much confusion. Aristotle recognized that the eggs, which are produced by the female, must be fertilized by the semen or sperm of the male, in order to be capable of further development. He studied with care the formation of the egg in the ovary of the hen, and also observed the process of the development of the chick day by day during incubation.

Some of his more important observations on the developing chick are as follows: After three days of incubation, during which he could see no definite change, the heart appears as a pulsating red spot, in the white of the egg near the yolk. From the heart extend two sets of vessels, one to the yolk and the other

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* A lecture given under the auspices of the Graduate School, University of Minnesota.

1. Aristotle: History of Animals, translated by Richard Cresswell, London, 1891.

2. Aristotle: Generation of Animals, Von der Zeugung und Entwicklung der Thiere, translated by Aubert and Wimmer, Leipzig, 1860.

to the membranes. Soon the body of the chick embryo appears, the head, especially the brain and eyes, being relatively large, and the tail end of the body very small. The various organs, liver, lungs, etc., appear successively, by epigenesis, and not simultaneously. By the tenth day, all parts are distinct, the intestinal canal extending toward the navel. The yolk sac is gradually absorbed for nutriment. The brain matures slowly, and the roof of the skull is the last part of the skeleton to form.

In the viviparous animals (mammals) Aristotle described the process of reproduction as consisting in an intra-uterine intermingling of the male semen with the female semen. The latter is described as formed from the menstrual fluid in the human female and from a corresponding substance in the females of other mammals during the rutting season. Aristotle's ignorance of anatomy is evident from his view that in both sexes the semen is secreted by the walls of the sexual ducts or passages, the true significance of the testes and ovaries being unrecognized. The material substance with the "vegetative spirit" for the embryo was supposed to be derived from the female, corresponding to the egg of oviparous forms, while the developmental stimulus, or "generative spirit," was ascribed to the male semen. The embryo and the surrounding membranes are supposedly formed by a coagulation of the menstrual fluid, the process being compared to the action of rennet in curdling milk. The formation of the embryonic body and organs was found to be in general agreement with that of the chick, as outlined before. The same sequence was noted, the inner parts of the embryo appearing before the outer, and the upper part of the body before the lower. The "nobler" tissues (the flesh and sense organs), were supposed to develop from the "purest" portion of the nutriment, while the "inferior" structures (bones, tendons, nails, hair) come from the residue.

Aristotle also studied human embryos, including one at forty days, "about as large as a large ant." He speculates at length on many questions concerning human embryology, but is usually cautious in his conclusions, as for example in this passage:

> If the child is a male, a movement is usually felt on the right side of the groin, in about forty days; if a female, a movement occurs on the left side in about ninety days. We must not suppose, however, that an accurate judgment can be formed in this way, for it often happens that the movement is felt on the right side when a female child, and on the left side when a male child is conceived. All these and such like things vary in a greater or less degree.

Aristotle also observed and classified monstrosities. Rejecting various superstitions as to their origin, he established a rational teratology by explaining the various malformations as developmental defects. He also discusses at length the nature of heredity, opposing an earlier theory resembling the later "pangenesis" of Darwin. It is not possible, he says, that the semen could be derived from all parts of the body, each to reproduce its corresponding part, for then it would be impossible for a crippled man to beget a normal child.

Many other interesting observations and doctrines of Aristotle must be passed over, but the foregoing will illustrate the range and importance of his work. In spite of numerous errors and crudities that were inevitable in such pioneer work, he established biology on a scientific basis, and formulated many of the problems that have occupied attention down to the present day.

Although embryology was thus established on a good foundation, the conditions in the following period were unfavorable for its further development. The Grecian and Roman civilizations were overwhelmed by successive wars and final invasions by the barbarians. During the middle ages, the all-powerful church directed attention to theological matters, and the study of science was discouraged and neglected. In embryology, a few scattered observations on minor details were made from time to time (by Galen, Fabricius and others), but the teachings of Aristotle on this subject remained virtually unchanged and unchallenged for eighteen or nineteen centuries, down to the time of Harvey.

DISCOVERIES BY HARVEY

Even Harvey (1578-1657), the keen-minded discoverer of the circulation of the blood (1628), frankly adhered for the most part to the embryologic doctrines of Aristotle, to whom he refers respectfully as the "Prince of Philosophers." Nevertheless, Harvey's work "On Generation" (1651) is a very important contribution, based on many years of observation and study, especially on the development of the chick and the deer.

In the chick, Harvey followed the formation of the ovarian egg and the development of the chick during incubation. To the accounts of Aristotle and of Fabricius (Harvey's teacher), he added much of importance. He correctly located the origin of the embryo in the whitish yolk-spot, or cicatricula. In the center of this area, he noted the pulsating heart at the close of the third day, but believed that the blood arose still earlier. He concludes that "the blood is the generative part, the fountain of life, the first to live, the last to die, and the primary seat of the soul." The various organs were found to arise successively by epigenesis, as noted by Aristotle, but are described more accurately and in greater detail.

In one respect Harvey differed from Aristotle, and in this case erroneously, by denying an actual contact of the male semen with the egg during fertilization. Harvey found it impossible to pass a probe or an injection of water up the female tract in either birds or mammals; and he therefore concluded that such a passage is likewise impossible for the male semen. He was thus driven to the assumption of a fertilizing action by the sperm at a distance, which he compared with the action of a contagion, or of a magnet on iron.

In the deer, Harvey had unusual opportunity to study the process of reproduction in the hunting parks of his royal patient, King Charles I. Harvey corrected Aristotle's view as to the source of the male semen, and traced it to the testis; but, like Aristotle, he failed to locate the origin of the mammalian ovum (which was later traced to the ovary by De Graaf). Harvey disproved the doctrine of a female semen, showing by careful dissections in the deer and other mammals that nothing of the kind is observed in the female either before or after copulation. He found the (mammalian) ovum first apparent in the uterus, being unable to trace any connection between the ovum and the ovary or the male spermatic fluid.

Thus, on account of the inherent difficulties of the subject, which baffled him despite his most careful observations, Harvey fell into serious errors. Even his greatest generalization, that all life comes from the ovum ("ex ovo omnia"), is imperfect in some respects. In mammals, by "ovum" he meant the intra-uterine sac, within which the embryo (as we now know) is already relatively advanced in development. And in lower

forms of life (insects, etc.) he still admitted that the ovum may arise by putrefaction or by the spontaneous generation of Aristotle. He also had an erroneous idea concerning the nature of the metamorphosis of the insect in the "egg" (cocoon).

Yet Harvey's work was of great importance in the advancement of embryology. He was able to trace both the earlier and the later development of the higher animals in much greater detail than was hitherto known, not only in the chick and deer, but also in man. He discerned the principal features of development, month by month, in the human embryo and fetus. Most important of all, he led the way to a renewed study of embryology by direct observation and experiment, the only road by which the truth can finally be reached.

The work of Harvey, in which only a simple magnifying glass was used, practically terminates what may be called the premicroscopic period. The introduction of the compound microscope, even the very imperfect instrument of the seventeenth century, gave an indispensable means and a great stimulus to the further investigation of embryology.

PROGRESS MADE POSSIBLE BY THE MICROSCOPE

Malpighi (1628-1694), by the use of the microscope, was able to add many details of importance to the observed process of development. Although a better observer than Harvey, Malpighi nevertheless made one serious error. In the chick he found the embryo already formed in the unincubated egg (owing to the hot weather of the Italian summer), and hence he proclaimed the doctrine of preformation of the embryo, in opposition to the doctrine of epigenesis previously taught by Aristotle and Harvey, and hitherto universally accepted.

This doctrine of preformation (or "evolution," as it was then termed) was further supported by the observations of Malpighi (also of Swammerdam and others) which revealed an unsuspected complexity of structure in the insect "eggs" (cocoons) and larvae, hitherto believed to be virtually unorganized. Bonnet taught that the embryo preexists in the egg as an invisible network of minute tubes, through which the heart pumps blood, furnishing nutriment to fill up the meshes of the net during the process of development. Haller and others during the eighteenth century, inspired by the philosophy of Leibnitz, pushed the preformation theory to the extreme limit, holding that nothing is really formed anew; that the ovum contains in miniature not only the adult which will develop from the embryo, but also, concentrically encased, similar germs of all succeeding generations. Thus it was seriously calculated that the ovary of Eve must have included 200,000 million minute human beings!

Another amusing corollary of this theory, illustrating also the theological tendency of the time, was furnished by Vallisnieri.[3] He argued that the parasitic intestinal worms (whose life history was then unknown) must likewise have been preformed within the human body and handed down from the first man, Adam. It was thought, however, that they were probably harmless until after the sin of Adam; and that they might have been transmitted in the form of eggs through Adam's rib in the creation of Eve, thus reaching the female.

Another phase of the embryologic problem was initiated by the discovery of the spermatozoa, first seen under the microscope by a medical student, Hamm (Hamen), at Leyden about 1675. He pointed them out to his teacher, Leeuwenhoek, who described them and claimed that they, rather than the egg, represent the real source of the embryo. Then arose a spirited controversy between the "ovists" and the "animalculists." The ovists claimed that the spermatozoa are merely parasitic organisms of no genetic significance, while the animalculists urged that the spermatozoa represent the essential elements in reproduction, the egg merely furnishing a nest or nutriment. Spallanzani proved that the spermatozoa are indispensable, since filtered semen was found to be impotent.

Furthermore, since preformation (or predelineation) was the prevailing doctrine, some investigators (Dalenpatius, Hartsoeker and others) claimed to have observed a miniature adult ("homunculus") in the spermatozoon under the microscope, and figures were actually published of such, showing the head, arms and legs. The climax was reached by Andry,[3] whose fanciful descriptions included a small trap-door in the ovum, large enough to admit only one spermatozoon of the many swarming around and seeking entrance. Savage conflicts were said to occur among the contesting spermatozoa; and if the victor had been injured, by the loss of a limb, for example, the embryo would present a similar defect, resulting in a congenital malformation!

A new era in embryology arose with the work of C. F. Wolff (1733-1794), who described the embryonic organs of the chick as arising from leaflike sheets, similar to those of embryonic plants. Wolff revived the epigenetic theory of Aristotle and Harvey, but his work was overshadowed by the prevailing preformation doctrines of the eighteenth century. Only later, in the early part of the nineteenth century, did his observations receive merited attention, when they were confirmed by Pander and especially by von Baer, by whom they were extended to form the modern germ-layer theory.

Von Baer (1792-1876), who discovered the mammalian ovum (1827), is generally considered the founder of modern embryology. The subsequent establishment of the cell theory and its application to embryology have largely revolutionized our ideas of the subject and have extended it in many ways, especially in its relation to heredity and to evolution. While these modern phases of embryology are not within the scope of the present paper, it may be noted that some of the older problems, notably the question of preformation versus epigenesis, still confront us, though in a somewhat different form. That the regions of the future organism are already determined while the embryo is still an apparently homogeneous disk was shown by His (1874), and has since been experimentally proved.

The earlier process of fertilization and segmentation has been worked out in great detail for various classes of animals, though not as yet in man. The sperm and ovum usually show no trace of preformation in the original sense of the term, although the polarity of the unfertilized egg in many cases appears to determine the axis of the future embryo. The time when definite organ-forming areas can be recognized varies in different species. The early development appears to be essentially epigenetic, probably consisting in a definite series of reactions between the fertilized ovum and its environment. But we know that the parental germ plasm, probably the chromosomes, must carry over *something* which predetermines the future organization. What this something may be, we do not yet

3. Rádl, E.: Geschichte der biologischen Theorien seit dem Ende des siebzehnten Jahrhunderts, Leipzig, 1905-1909.

know. Some biologists consider the problem insoluble. But others, encouraged by the increasing knowledge in the fundamental sciences of chemistry and physics, and by the recent rapid progress in the realm of experimental embryology, are hopeful that some day it may be possible to explain the riddle of embryology—how does the egg produce the organism?

THE CAUSE OF EPILEPTIC SEIZURES IN TUMORS OF THE TEMPOROSPHENOIDAL LOBE

A CONTRIBUTION TO THE STUDY OF EPILEPSY

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With varying degrees of emphasis, textbooks proclaim almost unanimously the importance of generalized epileptic seizures as a symptom of brain tumor. One author places them second only to headache in importance. Another states that they occur in as many as 50 per cent. of the cases. It had been our impression that such statements were misleading, and on studying a series of 165 cases of brain tumor coming to operation at the Neurological Institute in the last few years, we found that generalized epileptic seizures occurred in only four of the cases.

It is perhaps not difficult to understand why such high estimates of the frequency of epileptic seizures in brain tumor have been made. Some of them are due to impressions obtained by writers years ago, at a time when jacksonian spasms were the best known localizing sign of a brain tumor and a usual indication for operation. As it was customary at this time to refer to such spasms as epileptic seizures, it follows that the latter should figure numerously in statistics.

Another possibly confusing element in this connection is the loss of consciousness which occasionally accompanies localized jacksonian spasms. This is an important practical point which has been mentioned elsewhere by one of us, but which we wish to emphasize here. Localized jacksonian spasms indicate the exact area of the brain cortex which is most unstable. If a tumor is the cause of the instability, it will almost always be in the immediate vicinity of this area. The loss of consciousness which occasionally occurs with such an attack, as in four of the eleven cases in our series, by no means puts the attack in the category of generalized epileptic seizures or destroys its distinct localizing value. Indeed, loss of consciousness does not seem to have an especial significance in such cases, and may precede, accompany or follow the attack. One of our patients would regain consciousness while the limb was still jerking. Another would lose consciousness only at the conclusion of a severe attack.

Nevertheless, typical generalized epileptic seizures have often been definitely described as occurring in cases of brain tumor. In this series we found that they were a frequent accompaniment of tumors of the temporosphenoidal lobe. There were five such tumors: three caused typical epileptic seizures, and the other two caused attacks somewhat similar.

We have compared the frequent occurrence of epileptic seizures in our temporosphenoidal tumors with their occurrence in other cases that have been reported. In contributions to the subject of temporosphenoidal symptomatology by Ferrier and by Mills, twenty-seven different cases are recorded. In thirteen of these, almost 50 per cent., generalized epileptic seizures occurred. In a report of nine cases of temporosphenoidal lobe tumor by Foster Kennedy, four patients had typical major epileptic seizures, and three others, he says, "suffered at some time or other from sudden attacks of loss of consciousness associated with cyanosis and stertorous respirations." The occurrence of epileptic seizures seems, therefore, to be a consistently frequent feature of the symptomatology of temporosphenoidal tumors.

Epileptic seizures were not only a frequent result of a tumor in the temporosphenoidal lobe, but in our series occurred almost exclusively in the tumors that had this particular location; for in the remaining 160 cases in our series in which the tumors were variously located in other regions of the brain, only one, a tumor in the postparietal region near the angular gyrus, caused epileptic seizures.

To some, the proximity of the temporosphenoidal lobe to the precentral gyrus or motor area of the brain cortex might seem sufficient explanation for epileptic seizures occurring with tumors situated in this lobe. We wish, therefore, to call attention to the fact that there were six of the twenty-two frontal lobe tumors in the series, and five at least of the eighteen parietal tumors, which were not only proximate to the motor area but at operation were considered definitely to

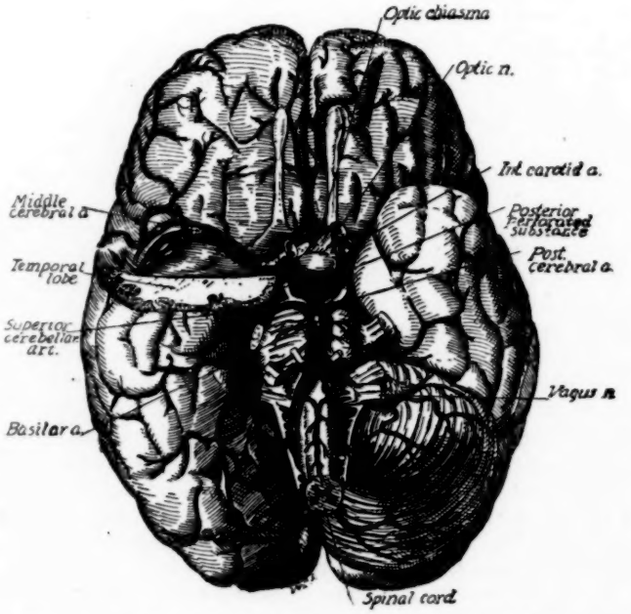

Fig. 1.—Location of the middle cerebral (sylvian) artery in the sylvian fissure between the temporosphenoidal and frontal lobes (from Sobotta-McMurrich).

implicate it, and in not one of these cases did generalized epileptic seizures occur.

It will be remembered that convulsions may be due to a sudden reduction of the cerebral blood supply. The convulsions of Stokes-Adams disease, the Kussmaul-Tenner convulsions provoked by ligation of the internal carotid arteries, and the spasms consequent on electrical stimulation of the peripheral end of a cut vagus nerve are all attributed to this cause.

If both common carotids are suddenly compressed, the pupils widen, respiration deepens, and dizziness and

loss of consciousness follow. Epileptiform spasms frequently occur. Leonard Hill, writing on the experimental pathology of the cerebral circulation, describes graphically the effect of digital compression by himself on one of his carotid arteries.

> The first effect of compression was a tingling sensation in the eye on the same side; then followed a march of a sensation of pins and needles down the opposite side of the body: this began in the fingers, spread up the arm, then down the leg. Finally clonic spasms of the flexors of the forearm occurred, accompanied by a feeling of vertigo and alarm.

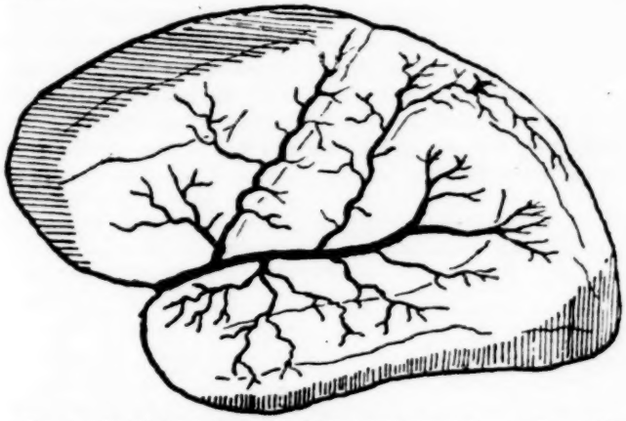

Fig. 2.—Arterial supply of the lateral cerebral surface. The middle cerebral artery and its divisions are shown on the area left white (from Bing).

A glance at Figure 1 will serve to remind the reader how the internal carotid artery, after its arrival at the base of the brain and its assistance in the formation of the circle of Willis, divides into an anterior cerebral and a larger middle cerebral artery. The latter vessel, often called the sylvian artery, pursues a course outward in the sylvian fissure to the island of Reil, where it divides into branches which spread over and supply almost the whole lateral surface of the cerebral cortex.

We wish to call attention to the fact that, in its course in the sylvian fissure, this important arterial trunk lies across the superior surface of the temporosphenoidal lobe with the frontal lobe above it. Therefore, it might be considered that an abrupt transient compression of the sylvian artery because of an increase in the congestion or edema surrounding the tumor, by suddenly reducing the cortical blood supply, could be responsible for the epileptic seizures that occur in the course of such a large percentage of temporosphenoidal tumors.

There is an explanation, however, which we believe more properly accords with all the facts of the situation. Frequently the clinical picture of these tumors is at first just that of ordinary epilepsy. The attacks may occur at intervals for a long time, even for years, before definite signs of an intracranial growth appear.

A slowly enlarging temporosphenoidal tumor, perhaps long before it is of sufficient size to cause a generally increased intracranial pressure, will exert local pressure on neighboring parts. On account of the bony cranium beneath the temporosphenoidal lobe, the tumor will expand upward. One of the earliest results of expansion upward, we believe, would be a partial compression of the sylvian artery, causing a narrowing of its lumen and a decreased blood flow through it to the cortex. The vulnerability of the arteries of the brain to pressure may be considered increased by the fact that "in contrast to the arteries of the extremities with their muscularis and adventitia, the cerebral arteries show strikingly thin walls with relative poverty in elastic elements." [1]

An illustration (Fig. 3) from Pierre Marie is included here to show the large degree of cortical softening which is possible in complete obliteration of the sylvian artery, in spite of what is usually considered a fairly free anastomosis of the large cerebral vessels. It seems likely that a partial obliteration of this vessel, occurring in the manner we have just indicated, will limit the blood supply of a large area of the cortex to a degree that must at best be poorly compensated for by anastomotic vessels.

OCCURRENCE OF CONVULSIONS IN ONE HUNDRED AND SIXTY-FIVE BRAIN TUMORS

Character	Cases	Location of Tumor	Cases
Major epileptic seizures	4	*Temporosphenoidal*	3
		Postparietal area	1
Localized jacksonian spasms	11	Frontal, involving motor area	6
		Parietal, near motor area	5
Generalized convulsions without unconsciousness	3	*Temporosphenoidal*	2
		Intraventricular with extreme hydrocephalus	1
Localized jacksonian spasms occasionally accompanied by unconsciousness	4	Frontal, involving motor area	4

It is the slight degree of anemia of the cortex rather than the large, according to such an authority on the cerebral circulation as Leonard Hill, that is most effectual in producing that state of cortical instability which is recognized by a greatly augmented excitability.

We accept the view that recurring epileptic seizures always imply the existence of a more or less generalized cortical instability. Therefore the comparatively great liability of a tumor in the temporosphenoidal lobe to cause epileptic seizures led us to believe that there must be some anatomic peculiarity of this region which made it extremely likely that a tumor here would produce wide cortical instability.

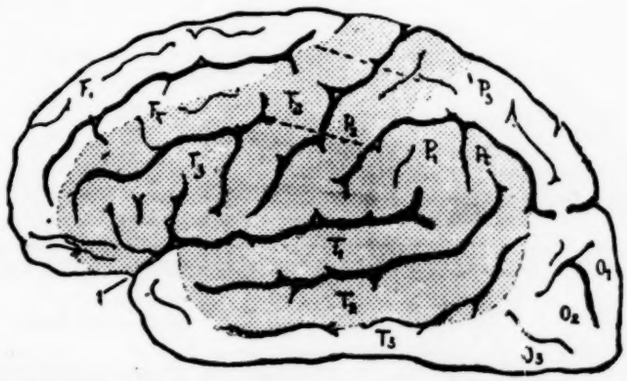

Fig. 3.—Area of softening of the cortex due to obliteration of the middle cerebral (sylvian) artery at its commencement (from Pierre Marie, Campbell Thomson's Diseases of the Nervous System).

It seems to us, in the light of the foregoing facts, that it is almost impossible for a tumor to grow to any considerable size in the temporosphenoidal lobe without producing through interference with the arterial circulation to the cortex, such an amazingly vast area of cortical instability as to make the occurrence of epileptic seizures seem an almost inevitable consequence.

In addition, perhaps it might be considered that extensive pressure from within and above downward on the sylvian artery, such as might occur with a large internal

1. Bonnet and Triepel, in Curschmann's Text-Book of Nervous Diseases, Philadelphia, P. Blakiston's Son & Co. **2**: 669, 1915.

hydrocephalus, would also, in the same manner as a temporosphenoidal tumor, produce a wide area of cortical instability leading to epileptic convulsions. In this connection it is interesting to note that dilated ventricles, the postmortem evidence of internal hydrocephalous, are observed to occur in almost one in three of the necropsies on epileptics at Craig Colony.

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CREATIN AND MUSCLE TONUS IN MAN *

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Among the data accumulated for the study of the chemical composition of human blood [1] there occurred a series of analyses of blood taken from two individuals, oughly; but since further work along this line by the author is now problematical, it seems worth while to make a report of the findings and briefly to correlate them with the present status of the creatin problem.

Turning first to the analytic results, there is found in the tables the amounts of the various constituents determined in terms of nitrogen and as percentages of the total nonprotein nitrogen. All analyses were made according to the methods of Folin and Wu [2] and Van Slyke.[3]

Table 1 gives the values obtained from two specimens of blood, taken seven days apart, from a woman in a catatonic stupor at both times. This patient had already passed from the condition of imperceptible or absent tonicity of the skeletal musculature into a more normal state where tonus was beginning to be reestablished. The part played by the respiratory musculature in modifying the general picture is unknown. If the figures of this table are compared with Table 2, which represents the range and average amounts of the various constituents previously reported as normal values,[1] it will be seen that the creatin is increased both absolutely and relatively to the total nonprotein nitrogen. Unfortunately, it was impossible to obtain further samples of blood from this person for analysis.

TABLE 1.—ANALYSES OF THE BLOOD FROM A WOMAN IN CATATONIC STUPOR

Date	Total Gm.	Nonprotein N, Mg.	Urea N		Creatinin N		Creatin N		Uric Acid N		Amino-Acid N		Residual N		Sugar, Mg.
			Mg.	%	Mg.	%	Mg.	%	Mg.	%	Mg.	%	Mg.	%	
11/14/19	2.34	49.8	25.7	51.6	0.41	0.8	**2.45**	**4.9**	1.3	2.6	6.5	13.1	13.4	26.9	132
11/21/19	2.56	39.3	17.7	45.0	0.44	1.1	**2.69**	**6.8**	0.8	2.0	...	....	....	....	138

TABLE 2.—RANGE OF VARIATIONS, AVERAGE AMOUNTS AND AVERAGE PERCENTAGE IN TERMS OF NONPROTEIN NITROGEN (NORMAL VALUES)

Constituent	Range, Mg.	Average Amount, Mg.	Average per Cent.
Creatinin N	From 0.37 to 0.60	0.47	1.3
Nonprotein N	From 27.3 to 45.5	35.6	100.0
Total N	From 2560 to 4290	3070	....
Creatin N	From **0.62** to **1.78**	**1.30**	**3.7**
Sugar	From 85 to 166	112.0	....
Uric acid N	From 0.50 to 1.16	0.78	2.2
Amino-acid N	From 3.1 to 7.2	4.9	13.8
Urea N	From 9.7 to 25.1	17.1	47.8
Residual N	From 3.7 to 18.3	11.1	31.1

Table 3 gives the values obtained from the blood analyses of a man in catatonic stupor over a period of eight weeks, during the first five of which there was an evident marked lack of muscular tonicity, and during the last three weeks of which a more normal condition first during catatonic stupor and later as release from the condition began.

TABLE 3.—ANALYSES OF THE BLOOD FROM A MAN IN CATATONIC STUPOR

Date	Total Gm.	Nonprotein N, Mg.	Urea N		Creatinin N		Creatin N		Uric Acid N		Amino-Acid N		Residual N		Sugar, Mg.
			Mg.	%	Mg.	%	Mg.	%	Mg.	%	Mg.	%	Mg.	%	
10/30/19	3.26	40.0	22.6	56.4	0.4	1.1	**1.7**	**4.3**	0.6	1.4	5.9	14.8	8.8	22.0	125
11/ 6/19	3.30	34.5	17.7	51.2	0.4	1.2	**1.5**	**4.2**	0.6	1.8	5.6	16.1	8.8	25.6	122
11/13/19	2.73	37.3	19.2	51.6	0.4	1.2	**1.4**	**3.9**	0.6	1.5	6.0	16.0	9.6	25.9	166
11/20/19	2.73	33.7	16.7	49.5	0.5	1.4	**1.5**	**4.4**	0.7	2.2	6.6	19.5	7.8	23.1	145
11/27/19*	3.06	35.7	17.9	50.0	0.4	1.2	**1.4**	**3.9**	0.7	2.1	5.1	14.3	10.1	28.5	138
12/ 4/19	3.09	28.6	13.3	46.7	0.4	1.4	**2.1**	**7.3**	0.6	2.0	4.0	14.0	8.2	28.6	133
12/11/19	3.17	31.6	15.8	50.1	0.4	1.4	**2.0**	**6.3**	0.6	1.8	5.2	16.3	7.6	24.2	110
12/18/19	2.82	27.4	13.5	49.3	0.4	1.6	**2.0**	**7.3**	0.5	1.9	5.1	18.7	5.9	21.4	97

* Change of condition between 11/27/19 and 12/4/19.

Particular interest is attached to these analyses because of the fact that they alone show deviations from the average normal limits obtained from the group as a whole, and because creatin was the constituent whose variability is significant in view of its normal relative uniformity. This deviation consisted in each of the two cases of both an absolute and a relative increase in the blood creatin coincident with the reestablishment in the skeletal musculature of an evident condition of tone which heretofore had been absent. The increased creatin of the blood continued long after the inception of perceptible muscular movements.

At the time the observations were made it was planned to investigate the phenomenon more thoroughly of tone was shown by the fact of the occurrence of movements of the limbs and trunk.

It will be noted that some time between the week beginning November 27 and the week beginning December 4, a fundamental change of some sort occurred that resulted in an increase of the creatin of the blood both absolutely and relatively to the nonprotein nitrogen. The only perceptible change in this period was that the patient was muscularly active two days before the last specimen was taken for analysis for the first time in several months, and that the complete relaxation heretofore obtaining was absent.

I attribute this increase in the blood creatin to the establishment of a condition of tone in the general skeletal musculature which had previously been absent. The studies of Pekelharing [4] and of Pekelharing and

* From the Wistar Institute of Anatomy and Biology.

1. Hammett, F. S.: J. Biol. Chem. **41**: 599 (April) 1920.
2. Folin, Otto, and Wu, H.: J. Biol. Chem. **38**: 87 (May) 1919.
3. Van Slyke, D. D.: J. Biol. Chem. **12**: 278, 1912.
4. Pekelharing: Ztschr. f. physiol. Chem. **75**: 207, 1911.

Van Hoogenhuyze [5] have shown that the amount of creatin in the muscle is correlated with the muscle tone, and that conditions which tend to increase the tone tend to increase its creatin content. Henderson [6] had found an increased muscle creatin in paratyphoid tetany in dogs, and Powis and Raper [7] and Denis [8] have observed an increased creatin excretion in the urine voided by day over that voided at night, which can be attributed to a difference in muscular tone at these times, although Denis [8] interprets the results on the degree of protein intake. Moreover, Denis [9] reported a creatin excretion in cases of exophthalmic goiter; Salant and Rieger [10] found that the injection of caffein into rabbits caused an increased creatin excretion; and Krause [11] asserts that there is a relation between creatinuria and the sexual cycle in women, all of which are conditions well known to be accompanied by increased nerve activity and consequent increased muscle tonus. On the other hand, when tonus is prevented in a group of muscles by section of their nerves, the creatin content of the group so affected diminishes, as was found by Weber,[12] and by Cathcart, Henderson and Paton.[13]

My results also indicate that creatin, at least in these cases, is not a postmortem product of muscle tissue in the sense of Folin and Denis.[14] Nor do they support the principle of the exogenous source of the urinary creatin, as stated by Denis [8] as the immediate cause of the creatinemia, since the dietetic regimen was uniform throughout the period of observation. Moreover, the results of Cathcart, Henderson and Paton, already cited, speak against such a conception, and it is highly improbable that the action of the reestablishment of a more normal condition of tone in the muscles in squeezing creatin out of its storage in the muscles into the circulation is sufficient explanation for the continuance of the creatinemia over a period of weeks.

In view of these correlated facts, I would rather accept the interpretation of Steenbock and Gross [15] of the creatinuria obtained by Denis and Minot [16] and Denis and Kramer [17] when feeding high protein diets as due to a stimulation of the endogenous metabolism leading to the production of creatin. This may, indeed, be of the nature of a stimulation of skeletal musculature to a condition of increased tone and hence only indirectly contributing to creatin production. I would therefore incline to the opinion that creatin represents a product of the normal metabolism of the muscle protein in its condition of tone, and agree with Steenbock and Gross [15] that the substance is an "end-product in the catabolism of certain precursors in the protein molecule, just as urea is of others."

With regard to the correlation of carbohydrate metabolism and creatinuria, as studied by Mendel and Rose,[18] Rose, Dimmitt and Bartlett,[19] and others, it would seem worth while to consider the problem from the point of view of that phase of carbohydrate metabolism associated with muscle tonus rather than with carbohydrate metabolism in general, as the great utilizers of carbohydrates are the muscles, and since it has been shown that creatin is so intimately associated with muscle tonus.

5. Pekelharing and Van Hoogenhuyze: Ztschr. f. physiol. Chem. **64**: 266.
6. Henderson, P. S.: J. Physiol. **52**: 1 (April) 1918.
7. Powis, F., and Raper, H. S.: Biochem. J. **10**: 362, 1916.
8. Denis, W.: J. Biol. Chem. **29**: 447 (April) 1917.
9. Denis, W.: J. Biol. Chem. **30**: 47 (May) 1917.
10. Salant, W., and Rieger, J. B.: J. Biol. Chem. **14**: 35, 1913.
11. Krause, R. A.: Quart. J. Exper. Physiol. **4**: 293, 1911.
12. Weber: Arch. f. exper. Path. **58**: 93, 1908.
13. Cathcart, E. P.; Henderson, P. S., and Paton, D. N.: J. Physiol. **52**: 70 (April) 1918.
14. Folin, Otto, and Denis, W.: J. Biol. Chem. **17**: 493, 1914.
15. Steenbock, H., and Gross, E. G.: J. Biol. Chem. **36**: 265 (Nov.) 1918.
16. Denis, W., and Minot, A.: J. Biol. Chem. **31**: 561 (Sept.) 1917.
17. Denis, W., and Kramer, J. G.: J. Biol. Chem. **30**: 189 (June) 1917.
18. Mendel, L. B., and Rose, W. C.: J. Biol. Chem. **10**: 213, 255, 1911-1912.
19. Rose, W. C.; Dimmitt, J. S., and Bartlett, H. L.: J. Biol. Chem. **34**: 601 (June) 1918.

SUMMARY AND CONCLUSIONS

The results reported, of a condition of creatinemia coincident with the emergence from catatonic stupor when the normal muscle tone is beginning to be reestablished, are interpreted as supporting the opinion that creatin is an end-product of the catabolism of certain precursors in the protein molecule, and particularly that phase of muscle-protein catabolism associated with the condition of muscle tonus.

TRAUMATIC SUBCUTANEOUS EMPHYSEMA AND REVIEW OF THE LITERATURE *

REPORT OF CASES

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AND
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In reviewing the literature, we have been unable to find any reports of traumatic emphysema. Berkley and Coffen,[1] in reviewing the cases of subcutaneous emphysema and spontaneous pneumothorax, which occurred during the influenza epidemic at Camp Lewis, say:

> The clinical picture of this emphysema, extending up over the neck, face and scalp, and down over the chest and trunk to the pelvis, and even to the external genitalia, is of such rarity and interest that the cases are here reported. Spontaneous pneumothorax has developed in two patients having extensive bronchopneumonia. That there is a relationship between these two conditions and that they are produced by similar pathologic processes has seemed likely. One case, in fact, presented, at different times, both of these complications.

Their explanation of the production of emphysema and pneumothorax is this:

1. *Intrapleural Route.*—For air to pass from the lungs to the chest wall by this route, it must pass through both the visceral and the parietal pleura. To do this without causing a pneumothorax, it must be assumed that adhesions exist between the pleurae at this point.

2. *Extrapleural Route.*—Air sacs on the periphery of the lung rupture. The air follows the line of least resistance and travels beneath the visceral pleura to the hilum, and then follows the reflection of the pleura on the big vessels and enters the mediastinum and then follows the fascial planes into the tissues. These ruptured air sacs have been found at necropsy. Leading off from these were "air streaks" following the course of the big vessels.

Dissection of the lungs demonstrated that these air streaks could be traced along the vessels to the hilum. By exposing the hilum extrapleurally without rupturing the bronchus and submerging it in water, it was possible, by gently squeezing the lung, to force bubbles of air to the hilum, the bubbles rising from around the vessel walls.

* From Mount Sinai Hospital.

1. Berkley, H. K., and Coffen, I. H.: Generalized Interstitial Emphysema and Spontaneous Pneumothorax as Complications of Bronchopneumonia, J. A. M. A. **72**: 535 (Feb. 22) 1919.

Alexander and Follett,[2] in reviewing traumatic emphysema, state that stab wounds, puncture wounds produced by the exploratory needle, rupture of any part of the alimentary tract, as the esophagus, the stomach or the rectum, rupture of air passages, as the nose, trachea or sinuses, or any erosion as the result of foreign bodies in the bronchi may cause it.

Fracture of a rib may occasion emphysema. The rib injures the parietal and visceral pleurae and lung tissue. During inspiration, the lung expands and air rushes into the pleural cavity, and on expiration the lung collapses and the laceration is closed, so the air cannot be drawn back—this is a very apparent cause. Emphysema after laparotomy is probably caused by air getting into the peritoneal cavity, and if the patient strains or coughs, it may be forced out into the subcutaneous tissue.

Meyer and Lucke,[3] in reporting cases of subcutaneous emphysema complicating influenza and pneumonia, could not demostrate a pneumothorax in any of their cases, and no point of rupture of the lung could be found at necropsy. Their theory of the mode of origin was that either chemical changes in the blood occurred, permitting the air to escape in the tissues, or rupture of the air vesicles at the apex of the lung or through the intrapleural route occurred—provided adhesions exist at the point of rupture, or through the extrapleural route, provided the air dissects its way to the hilum of the lung.

REPORT OF CASES

CASE 1.—J. S., aged 8, on September 15, fell from a truck and was struck by a box on the left side of the chest. He was not unconscious and felt fairly well at that time. Two days later his mother noticed that the skin over the chest and the left side of the face was puffy, and the child had difficulty in breathing. He did not cough nor was there any bloody expectoration. On examination, subcutaneous emphysema was found over both clavicles, neck, face and down the chest on both sides as far as the third rib. Roentgen-ray examination of the lungs was negative, as was the physical examination. There was some dyspnea on inspiration and expiration, and slight cough. The patient continued to improve from the date of entrance, and was discharged on the ninth day, the air having entirely disappeared from the tissues.

CASE 2.—N. V., aged 25, fell from a truck and came to the hospital complaining of pain in the dorsal region of the spine and left shoulder. There was no bloody expectoration, but there was a slight cough. Physical examination of the lungs was negative. Air was found in the tissues over the entire left chest. The roentgen ray revealed no fracture of the spine, ribs, nor any pathologic condition of the lungs. It disclosed plainly the emphysema in the tissues. On the second day, the patient vomited frequently and felt very uncomfortable. He was discharged on the fifth day in good condition, but there was still some air in the tissues.

CASE 3.—F. T., aged 32, gave a history of being an alcoholic. On admission, the lungs were found negative. The patient was operated on, October 20, for double hernia, gas and anociassociation being used. October 22, the patient developed pain in the chest, cough and bloody expectoration, air hunger and cyanosis. At this time, there were two conditions thought of: hemorrhage and pulmonary embolus. On physical examination, the chest was found to be hyperresonant throughout. Breath sounds were audible but diminished on the right side. Distinct friction sounds were audible and palpable in the left axillary line. Subcutaneous emphysema was present over the right side of the chest, especially marked in the midaxillary region. October 23, the patient died. No necropsy was obtained.

CASE 4.—J. S., aged 32, entered the hospital suffering from two gunshot wounds, one bullet entering the back about 3½ inches to the right of the spine between the tenth and eleventh ribs, the other entering his left arm, posterior to the humerus, about 2½ inches from the shoulder joint, and appearing in the subcutaneous tissues on the anterior chest wall in the midclavicular line in the seventh interspace. The roentgen ray demonstrated the first bullet about 1 inch to the left of the spine beneath the diaphragm, probably in the left kidney, as the urine contained blood for two days. The roentgen ray also demonstrated shadows in the left chest, probably due to blood and the emphysema in the subcutaneous tissues of the left chest. The patient was in profound shock when he entered the hospital and complained of difficulty in breathing. Examination revealed the air in the tissues over the left chest from the third to the seventh interspace, dulness at the left base and hyperresonance above. The patient improved rapidly, and on the third day the bullet was removed from the chest wall. The area of emphysema was gradually growing smaller, and on the fifth day when the patient was removed from this hospital, he was in good condition, suffering only from a slight cough.

CASE 5.—G. K., aged 25, fell, causing a rupture of a vein in the left arm, with extensive extravasation of blood. After several days' treatment, it was seen that this could not be absorbed, so small incision was made and about one-half teacupful of blood clot was evacuated. As the last clots were expressed, air bubbles were noticed.

This air or emphysema is probably explained by Velpeau's theory of emphysema in hematomas, as gases produced by action of acids, such as lactic acid on the contained blood. He demonstrated these acids in contused tissues and has produced emphysema experimentally by injecting lactic acid into hematomas produced experimentally in animals.

Our theory of the cause of the emphysema in Cases 1 and 2 is that of a sudden increase in intrapulmonic pressure, which can be caused by severe coughing, a sudden blow on the chest, etc., with rupture of superficial air vesicles, the air reaching the subcutaneous tissues by traveling beneath the visceral pleura to the hilum of the lung and then along the reflection of the pleura from the big vessels into the mediastinum, thence along fascial planes to subcutaneous tissues. In Case 3, the emphysema was probably caused by rupture of the air vesicles on the surface of the lungs due to coughing, the air probably traveling by the extrapleural route, and the hyperresonance and diminished breath sounds probably indicating an emphysema of the entire surface of the lung previous to extravasation of air into the tissues. In Case 4, the emphysema was probably due to a bullet's perforating the lung and allowing the air to escape immediately through the wound in the chest wall into the subcutaneous tissues. The wound then became closed, preventing further escape of air from the lung.

CONCLUSION

Traumatic subcutaneous emphysema of the tissues of the chest and neck is usually, in our opinion, due to a sudden increase in intrapulmonic pressure, and the air usually travels by the extrapleural route. Case 3, in which subcutaneous emphysema followed an operation for double hernia, is not a true case of traumatic emphysema, but it is reported in this article because it was deemed of unusual interest.

2. Alexander, M. E., and Follett, E. C.: Subcutaneous Emphysema with the Report of Several Cases, Particularly One with Very Extensive Generalized Emphysema. J. A. M. A. **72**: 930 (March 29) 1919.
3. Meyer, Jacob, and Lucke, B.: Subcutaneous Emphysema, Am. J. M. Sc. **159**: 417 (March) 1920.

The Hospital Pathologist.—There is no reason—none which will appeal to the pathologist—why his income must remain stationary in contradistinction to all the rest of his professional brethren. It should be commensurate with his ability in the first place and should increase pro rata. This will depend on himself, his hospital and its staff.—R. A. Kilduffe, *Hospital Progress* **2**:45, 1921.

THE PROGNOSIS OF NEPHRITIS IN CHILDHOOD

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This study was undertaken to determine: (1) how many patients that had had acute nephritis recovered entirely; (2) how many developed the chronic type; (3) the present condition of the chronic type; (4) the ultimate prognosis.

Little has been written on the prognosis of nephritis in children, especially on the chronic type of nephritis. In a review of the literature on this subject, it is seen that Ernburg [1] located and examined forty out of 106 adults who had had nephritis, in most cases following some infection before the age of 15, and found normal urines in all. In sixteen out of fifty adults, in whom acute nephritis had occurred between the ages of 15 and 30, he found all the urines normal except four: two of these were cases of recent origin and, in the others, the original attack had been subacute rather than acute and showed albuminuria. He concludes that "if these figures give us a true picture, we certainly have been unduly pessimistic about the prognosis of acute nephritis."

Apert [2] believes that a kidney, once injured, is prone to have acute exacerbations of that injury, and that many of the cases of nephritis that we see in adult life may have originated in early childhood.

Hutinel [3] says that nephritis in childhood always tends toward recovery, whereas in adults it tends the other way.

Hill [4] believes that the most obscure prognosis is connected with the mild chronic cases, in which the child seems well, has normal functional tests and has merely, as evidence of nephritis, small amounts of albumin, a few casts and a few red blood cells in the urine. He believes that with normal functional tests it is possible for the kidney to recover entirely, but that with low functional tests, a severe chronic nephritis has probably developed. In the severe chronic cases with anemia, much edema, low functional tests and a large amount of albumin in the urine, the patients rarely live more than three or four years, hence the functional tests are here important in determining the expectation of life.

Opinions differ regarding cardiac hypertrophy and increased blood pressure. Hutinel says that the blood pressure may be raised in the acute stage, and may drop with the subsidence of the infection. Baginsky,[5] by clinical methods, could find no evidence of cardiac enlargement in any of the cases of acute nephritis. Friedlander [6] found cardiac hypertrophy in a number of cases of scarlatinal nephritis in children that came to necropsy. Wessler,[7] by the use of the fluoroscope and percussion, found cardiac hypertrophy in all his cases of nephritis, both acute and chronic. Nobecourt [8] concludes in a study of fifteen cases that: (1) in acute cases the blood pressure was raised; (2) in the chronic cases, the blood pressure was less than the pressure in normal children of the same age; (3) in acute nephritis there is likely to be cardiac dilatation, and in the chronic cases there may or may not be hypertrophy. Gordon,[9] from a study of nine cases, concludes that the blood pressure is usually raised in both acute and chronic nephritis of children. Berkley and Lee [10] conclude from a study of ninety-three cases of acute and chronic nephritis in children that: (1) The blood pressure is raised in nephritis of childhood, and occasionally to a marked degree. This applies to both acute and chronic nephritis. (2) Diastolic and systolic pressure are not increased to the same extent, the former varying about 20 mm. of mercury and the latter about 10 mm. above normal. (3) The pulse pressure is increased, but the factor is not constant. (4) The blood pressure in chronic nephritis shows no constant elevation above that in acute nephritis. (5) The blood pressure may, in rare instances, be of prognostic value. (6) No relation has been found to exist between the blood pressure and the urinary findings. (7) Patients with marked edema show a slightly higher blood pressure than those with none. The difference is not great enough to warrant any definite conclusion. (8) Albuminuric retinitis is probably not common even in cases showing a marked blood pressure.

TABLE 1.—ETIOLOGY OF NEPHRITIS

Disease	Nephritis	
	Acute	Chronic
Tonsillitis	22	4
Otitis media	5	..
Unknown etiology	11	..
Scarlet fever	4	4
Impetigo	1	..
Influenza	2	..
Measles	1	1
Lobar pneumonia	3	..
Cervical adenitis	3	..
Turpentine given for worms	1	..
Gastro-intestinal	1	..
Following appendectomy	1	1
Pyorrhea	1	..
Purpura	2	2
	58	12
Total	70	

Hill [11] believes that in acute nephritis a raised blood pressure does not necessarily carry with it a bad prognosis, nor does a normal blood pressure indicate a good prognosis. He also believes that in chronic nephritis a normal blood pressure does not mean that the case is a mild one; and that a constant and considerably raised blood pressure in chronic nephritis means that the case is a severe one.

I have examined seventy children who had had nephritis in the Children's Hospital during the last sixteen years. The examination included the cardiovascular system, hemoglobin, urinalysis, present health of the child, record of the patient's condition while under treatment and the etiology.

From Table 1 it would seem that nephritis has its etiology chiefly in such acute diseases as may be caused by infections with organisms of the streptococcus, staphylococcus or pneumococcus type.

Sixty-seven patients were admitted originally with a diagnosis of acute nephritis and three with chronic nephritis. Nine of the sixty-seven cases, or 13.3 per cent., terminated in the chronic type, and of these only

1. Ernburg: Nord. med. Ark. **44**: 109, 1911.
2. Apert: Bull. méd. **21**: 961-963, 1907.
3. Hutinel: Bull. méd. **24**: 95, 119, 159, 1910.
4. Hill, L. W.: Studies in the Nephritis of Children: Clinical Considerations of Classification, Etiology, Prognosis and Treatment, Am. J. Dis. Child. **17**: 270-294 (April) 1919.
5. Baginsky: Arch. f. Kinderh. **33**: 91, 1902.
6. Friedlander: Arch. f. Anat. u. Physiol., 1881.
7. Wessler, H.: Latent Hypertrophy of the Heart in the Nephritis of Children, Arch. Int. Med. **14**: 517 (Oct.) 1914.
8. Nobecourt: Arch. de méd. d. enf. **12**: 881-919, 1909.
9. Gordon: Arch. Pediat. **28**: 343, 1911.
10. Berkley, H. K., and Lee, J. M.: Hypertension in Nephritis in Childhood, with a Study of Ninety-Three Cases, Am. J. Dis. Child. **13**: 354 (April) 1917.
11. Hill, L. W.: Studies in the Nephritis of Children, Am. J. Dis. Child. **17**: 270-294 (April) 1919.

two could be considered severe. The average age on admission was 6½ years, the oldest patient being 12, the youngest 2. At the time of the examination, the average age was 10; the oldest patient was 19, the youngest 4. The average length of time observed after discharge from the hospital was five years; the maximum, sixteen years; the minimum, three months.

All of the sixty-seven patients who had had acute nephritis are living under normal conditions, on ordinary diet; and in every case the urine was found to be negative. This fact is of importance in that it signifies that kidneys that have been injured are no more susceptible to infection than normal kidneys. I have selected five cases which are reported herewith to show the possible time that elapsed during which there was no recurrence despite the fact that several of the patients had acute infections during that period.

REPORT OF CASES

CASE 1.—O. N., boy, aged 3¼ years, was admitted Dec. 31, 1904, with acute nephritis, edema of the face and extremities. The urinary picture showed a large amount of albumin with many fine and coarse granular casts. The patient had uremic symptoms severe enough to require a hot pack.

He was seen April 17, 1920, sixteen years after discharge. There was no evidence of cardiovascular disease and the urine was negative. He was in good health and working as a farmer.

CASE 2.—K. K., aged 3 years, admitted Feb. 16, 1910, with acute nephritis following pneumonia, had uremic symptoms and a urine typical of severe acute nephritis. The blood pressure was not raised above normal.

He was seen April 10, 1920, ten years after discharge. His physical examination and urinary findings were negative. The blood pressure was practically normal. He had an attack of pneumonia in 1917 and a severe attack of influenza in 1918 with no kidney complications. His general health has always been good.

CASE 3.—R. N., aged 2½ years, admitted March 7, 1905, with acute nephritis following influenza, had uremic symptoms and edema of a marked degree. The eyes were almost closed and the urine showed a large amount of albumin, many hyaline, granular and epithelial casts. The hemoglobin was 50 per cent. He remained in the hospital forty-six days.

When seen April 15, 1920, fifteen years after discharge, he showed no evidence of cardiovascular disease and the urine was negative. His health was good and he was employed as a bookbinder.

CASE 4.—D. G., aged 5 years, admitted Sept. 10, 1906, with acute nephritis of unknown etiology, had marked edema and bloody urine with a large amount of albumin and casts. The blood pressure was slightly raised. He remained in the hospital twenty-three days.

When seen in April, 1920, the patient showed no evidence of cardiovascular disease and the urine was negative. He had a severe attack of influenza during the epidemic in 1918 with no kidney complications. He is in good health and working at his trade of wood-worker.

CASE 5.—A. R., boy, aged 10 years, was admitted Sept. 16, 1911, with acute nephritis following cervical adenitis. The urine was bloody and contained a large amount of albumin and casts. He was in the hospital one month and the urine showed the slightest possible trace of albumin and a few casts at the time of discharge.

When he was seen April 30, 1920, the cardiovascular system and the urine were negative. He has always been in good health and at present is employed as a mica-packer.

Briefly, then, two of the five patients (Cases 2 and 4) had acute infection following discharge from the hospital, 8 and 12 years later, respectively; and neither during the course of the subsequent infection nor at the present time do they show any sign of kidney impairment.

MORTALITY OF ACUTE NEPHRITIS

These determinations are based on a review of 188 cases from 1904 to the present year.

The mortality rate as shown in Table 2 was 6.4 per cent.

TABLE 2.—MORTALITY OF ACUTE NEPHRITIS

Result		Type of Nephritis: Acute Exudative	Type of Nephritis: Acute Hemorrhagic
Died in the hospital.....	10	10	0
Died after leaving hospital...	2	2	0
Total deaths	12	12	0

Of the twelve fatal acute exudative cases, one patient had an associated tuberculous peritonitis and one died of terminal pneumonia. Ten had general edema, two died of uremic convulsions; one patient having acute suppression of urine died following a decapsulation; one had associated acidosis. The point to be noted is that in none of the cases of the hemorrhagic type without edema the patients died in the acute stage.

CHRONIC NEPHRITIS

In the group of twelve chronic cases, the etiology was as follows: tonsillitis, 4; following appendectomy, 1; measles, 1; purpura, 2; scarlet fever, 4. The two most severe cases followed purpura.

The average age on admission was 7 9/12 years, the oldest patient was 11 7/12 years, the youngest 2 years. The average age at the time of examination was 11 years, the oldest patient was 14½, the youngest 6 5/12 years. The average length of time seen after discharge was two and one-twelfth years; four were seen five years and two between one and two years after discharge. The blood pressure of seven patients with albuminuria at the time of examination is given in Table 3.

TABLE 3.—BLOOD PRESSURE OF PATIENTS WITH ALBUMINURIA

Age	Blood Pressure: Systolic	Blood Pressure: Diastolic
10	102	65
5	92	56
7	100	45
10	139	110*
10	100	80
12	104	70
13	115	40

* Aortic.

This table shows that the blood pressure was not elevated. This corresponds to Berkley and Lee's findings (sixth conclusion). The patient whose blood pressure was 139 systolic and 110 diastolic had cardiovascular changes and aortic regurgitation. None of the patients showed any edema or anemia. Cardiac hypertrophy was found in only one case by clinical methods.

Of the twelve patients examined, eight had albuminuria, four did not. The albumin findings were as follows: a trace in two cases; very slight trace in one; slight trace in two, and slightest possible trace in three. In the urine of two patients, seen two years after discharge, a few red blood cells were found under high power.

REPORT OF CASES

CASE 6.—E. L., girl 8½ years, admitted May 26, 1919, with acute nephritis following acute tonsillitis and acute bronchitis, had nausea and vomiting and a moderate amount of edema. The blood pressure was 88 systolic, and 60 diastolic; hemoglobin was 85 per cent. and the phenolsulphonephthalein test was 90 per cent. The two hour renal test revealed an abnor-

mal fixation. The urinalysis demonstrated at times a large trace of albumin. On the date of discharge, there were a few granular and hyaline casts and a few red blood cells.

She was seen Oct. 1, 1920, one year after discharge. There was no evidence of change in the cardiovascular system, she had no edema or anemia. The urinalysis showed a slight trace of albumin, granular and hyaline casts, but no red blood cells. She was apparently in good health.

Impression: If infection can be avoided by proper climatic and hygienic conditions, she will probably recover. It is hard to tell when an acute nephritis ends and a chronic nephritis begins. Having lived a year, one is safe in saying that she has a mild chronic nephritis and will have to be watched over a long period of time before a definite conclusion can be reached.

CASE 7.—J. B., girl, aged 5 1/12 years, was admitted Aug. 7, 1919, transferred from the surgical department where she had been operated on for appendicitis. The urine showed a slight trace of albumin and a moderate number of casts, many red blood cells; phenolsulphonephthalein 45 per cent., and hemoglobin 60 per cent. She was admitted again April 26, 1920, for observation. At this time she had a slight upper respiratory infection. Her blood pressure was systolic, 92, and 60, diastolic. Hemoglobin was 90 per cent., the phenolsulphonephthalein test 70 per cent.; the two hours renal function test revealed a fixation of specific gravity. The urine showed only a very slight trace of albumin; there were no casts but many red blood cells.

This child is one of a family of eight, living in a poor district. There is no sunlight and the hygienic conditions are poor.

Impression: This case is interesting because of its mild onset and mild course throughout. In spite of this, the patient has had acute exacerbations of nephritis, probably due to unhygienic conditions. The two hour renal test reveals slight impairment of renal function. By change of environment and proper mode of living, she will probably recover.

CASE 8.—F. O. N., boy, aged 9 5/12 years, was admitted Jan. 11, 1918, with a diagnosis of chronic nephritis and asthma, cause undetermined. The urine contained a large amount of albumin, hyaline, granular casts and many red blood cells. There was marked edema. January 15, the blood pressure was 165 systolic, 76 diastolic. On that day, he had a severe convulsion, lasting forty minutes. Venesection was necessary, and 500 c.c. of blood was taken. On the date of discharge, February 28, the blood pressure was 108 systolic, and 48 diastolic; the urine showed the slightest possible trace of albumin, a few hyaline and granular casts and a few red blood cells. He was admitted again Aug. 12, 1919, with an acute exacerbation of nephritis, complaining of slight frontal headache. There was no marked evidence of nephritis in the urinary picture. The two hour functional test was normal, but the phenolsulphonephthalein output was very low, averaging 30 per cent., at various times rising to 50 per cent. before discharge. He was seen April 6, 1920, two years after the first severe onset and was apparently in good health, except for occasional attacks of asthma. His appetite was good and he was on ordinary diet. The blood pressure was 100 systolic, and 45 diastolic; the urine was negative.

Impression: This case is cited in contradistinction to Case 7. A boy, with a violent onset of nephritis followed in a year by an acute exacerbation, when seen had a normal urine. The immediate prognosis is good, but what will happen in the future no one can say.

CASE 9.—J. T., boy, aged 11 7/12 years, was admitted Feb. 27, 1918, with a diagnosis of chronic nephritis following scarlet fever. There was much edema and the urinary output was greatly diminished. A decapsulation operation was performed May 21, 1918, because improvement did not follow ordinary therapeutic measures. May 29th, the urinary output increased remarkably and the phenolsulphonephthalein test showed 83 per cent. The two hour renal test was normal.

He was seen April 29, 1920, two years after discharge, apparently in good health. He had an attack of influenza in 1919, with no kidney complications. There was no anemia. The blood pressure was 120 systolic and 65 diastolic, and the urine was normal.

Impression: This is a patient on whom a decapsulation had been performed two years before and who is now doing well. The blood pressure is rather high and if followed longer with continuous high readings one may be able to determine whether he will develop the hypertension type of chronic nephritis seen in adults.

CASE 10.—L. S., boy, aged 7 3/12 years, admitted July 17, 1913, with purpura and angioneurotic edema presented a urinary picture that was not that of nephritis. He returned to the hospital in 1915, and at this time the urine showed a small amount of albumin, granular casts and many red blood cells. The phenolsulphonephthalein output was 70 per cent. He was discharged relieved and readmitted May 7, 1917, with marked edema and the urinary findings of a severe nephritis. There was marked fixation of the specific gravity and a low amount of night urine. The phenolsulphonephthalein test was 30 per cent.

He was seen April 16, 1920, aged 11 3/12 years, three years after discharge. He was apparently in good health and had gone through an attack of influenza in that year without kidney complications. He was active and going to school daily. The heart borders measured 2 by 7 cm.; the aortic second sound was slightly accentuated; the blood pressure was 125 systolic and 85 diastolic; the urine was normal.

Impression: This is a case of severe chronic nephritis. The patient is doing well, there is evidence of cardiovascular change and he will probably acquire a contracted kidney.

CASE 11.—E. T., girl, aged 8 1/2 years, admitted Feb. 26, 1919, had measles and bloody urine in 1918, and since then has had a recurrence of bloody urine with edema. Her recent attack was similar. There was slight edema and the urinary picture was that of a severe nephritis. Blood pressure was 90 systolic and 72 diastolic; hemoglobin was 70 per cent., phenolsulphonephthalein test was 55 per cent.; the two hour renal test demonstrated abnormal fixation. The patient was readmitted Dec. 11, 1919, with an acute exacerbation of nephritis. The urine showed much blood, a large amount of albumin and many casts. The phenolsulphonephthalein output was 55 per cent. The two hour renal test revealed slight fixation and the blood urea nitrogen 16.7 mg. per hundred c.c. of blood. When seen eight months after discharge, the patient was in fair health, although she had occasional backaches. She was on a meat free diet and going to school. Hemoglobin was 70 per cent. Blood pressure was 102 systolic, 65 diastolic. The urine contained a trace of albumin, a few hyaline and coarse granular casts and a few red blood cells.

Impression: The fact that the condition has existed for two years with repeated exacerbations, the present urinary findings with a low phenolsulphonephthalein output entail a very guarded prognosis as to health and life.

CASE 12.—D. L., boy, aged 2 years, admitted in 1913 with nephritis following acute tonsillitis, bloody urine, a large amount of albumin and many casts, was discharged relieved. He was readmitted in August, 1915, with a similar attack, marked edema and blood pressure 110 systolic, and 85 diastolic. The edema continued to increase and a decapsulation was performed Oct. 18, 1915. He had two convulsions, on the eighth and fifteenth days following the operation. The urine was negative on the day of discharge, Dec. 12, 1915. He had no more convulsions until the attack following which he was admitted Oct. 12, 1920. At this time, the physical examination was negative, the blood pressure was not raised and the urine contained no albumin nor casts (intake 40 ounces, output 38 ounces). The phenolsulphonephthalein output was 65 per cent.; the fixation test was doubtful on account of vomiting. In the absence of positive findings pointing to convulsions of a renal origin, a diagnosis of petit mal was made.

Impression: This case illustrates the duration of chronic nephritis. The patient has had it for more than nine years with no change in the cardiovascular system and no albuminuria. These facts would point to a favorable prognosis were it not for the fact that there was an acute exacerbation, which, requiring a decapsulation, compels a guarded prognosis.

CASE 13.—F. L., girl, aged 5 1/2 years, admitted July 13, 1915, with severe chronic nephritis, following purpura, was very edematous. The blood pressure was 140 systolic, and 90

diastolic, with marked fixation of specific gravity by the two hour test. Hemoglobin was 68 per cent.; the phenolsulphonephthalein test was 25 per cent. The fluid intake was 32 ounces; the output was from 20 to 24 ounces. A decapsulation operation was performed May 4, 1916. One kidney was small and atrophic, about one-half normal size; the other was large and pale.

She was seen May 14, 1917. She was still edematous and the urine showed a large amount of albumin and casts. The phenolsulphonephthalein output remained the same. The patient played about the ward, as actively as a normal child. She was last seen April 10, 1920. Since her discharge, she has seemed well, going to school every day and she has been normally active. She has edema and bloody urine at times. On examination, her heart borders were 2.5 by 11 cm., and the murmurs were characteristic of an aortic regurgitation, the diagnosis being confirmed by a capillary pulse and pistol shot sound in the femorals. Her blood pressure was 139 systolic, and 110 diastolic. The fundi were normal; hemoglobin was 70 per cent., and phenolsulphonephthalein output was 30 per cent. The two hour renal function test demonstrated a marked fixation of specific gravity. The urinalysis showed a large amount of albumin, casts and rare red blood cells. Blood urea nitrogen was 36 mg. to 100 c.c. of blood.

Impression: This case shows the great damage that a kidney may suffer and yet be restored to sufficient functional capacity to allow the patient to carry on an active life. Any one seeing this child would not realize that she has nephritis. She is bright, active and happy. What is the ultimate prognosis? She has lived for five years since the onset of nephritis and may live for a considerable time longer. She may not reach puberty and certainly could not bear the ordeal of motherhood. A sudden attack of uremia may be the termination at any time.

A case analogous to this is reported in detail by O'Hare,[12] which he summarizes thus:

Nephritis which started presumably from scarlet fever at 9, had gone on for eighteen years, passing through various phases. Nine and ten years after the assumed onset the patient had what we believed to have been acute exacerbations of a chronic nephritis. Coincidently with, or subsequently to, these attacks the vascular apparatus of the body —including the kidney—began to play an increasing part. When the patient first came under our observation, fourteen years after the onset of the disease, she had a markedly sclerosed kidney with a very poor renal function. Just how poor this was can be readily seen. Three years before her death, the two hour renal test showed very advanced disease of the kidney. Her excretion of phenolsulphonephthalein in these years had only once been as high as 18 per cent., and for the last year of her existence has been practically 0. Her blood urea nitrogen has always been over 50 mg., about four times the average value. During the last year her blood creatinin has always been around 10 mg. and yet, in spite of this extreme renal impairment, she got along very well with these kidneys for three and one-quarter years. This was undoubtedly due to the fact that the process in the parenchyma had become inactive and that nothing happened to light it up. The only possible changes within the kidney were the slow intravascular ones which could not be measured. By living carefully within the low limits set by the few functioning glomeruli and tubules, our patient lasted much longer than could have been expected.

The important thing to bear in mind is that for the last ten years of the patient's life, the disease had been almost entirely a vascular one with greater vascular changes outside the kidney than within. The renal function, while low, was sufficient until infection broke the narrow thread by which it maintained itself.

SUMMARY AND CONCLUSIONS

1. In acute nephritis the greater percentage of patients recover absolutely, yet no one is justified in saying a child is well by one or several negative urinary findings, until after the child has lived under ordinary environment and on a regular diet for a considerable period. Then, with the urine negative, chemically and microscopically, one can say the child is cured. The prognosis in the acute exudative type, with edema and a diminished urinary output, is less favorable than in the acute hemorrhagic type without edema. My statistics show that only 13.3 per cent. of the sixty-seven acute cases developed a chronic type in the disease.

2. There is no specific guide to prognosis in the chronic type. All modern laboratory methods should be employed and the prognosis should be based on those findings. I believe that many patients with mild chronic nephritis recover. Diseased portions may recover even if there is considerable degeneration, and neighboring portions of the kidney may hypertrophy and carry on the extra work. In other words, an anatomically imperfect kidney can function efficiently. In this respect, nephritis is analogous to heart disease. It has become recognized that the functional capacity of the heart to perform its appointed task is of more importance than its structural defects. If the exercise reaction of the heart is good and there is little or no enlargement, the prognosis is good. A diseased kidney like a diseased heart, must be under observation for a long period of time before definite conclusions can be drawn. It is surprising to see the amount of damage a kidney may receive and yet apparently recover.

3. Many will stand severe infections without acute exacerbations of nephritis, but they are more prone to follow upper respiratory infections. For this reason all foci of infection should be treated, such as diseased tonsils, carious teeth and otitis media (acute or chronic). They act as a reservoir of toxic material which the kidneys drain.

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12. O'Hare, J. P.: Compatibility of Long Life with Low Renal Function, J. A. M. A. 73: 248-250 (July 26) 1919.

TINCTURE OF DIGITALIS AND THE INFUSION IN THERAPEUTICS *

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Our knowledge of the pharmacology of the digitalis group is increasing rapidly, and its therapeutic use now begins to approach an exact science more nearly, perhaps, than that of all excepting a few drugs. But there are still many minor points, and not a few major ones, that require further study.

Clinicians have long held the opinion that the action of the tincture of digitalis differs qualitatively as well as quantitatively from that of the infusion. This difference is usually explained on the ground that the several active principles found in the leaf are not extracted in the same relative amounts by the menstruum used in making the tincture and the water used in making the infusion.

Pharmacologists have shown a disposition to give too little consideration to the views of the older therapeutists when these appear to be in conflict with the deductions drawn from the results of modern experi-

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ments, even as many therapeutists have a tendency to dismiss pharmacologic deductions when they fail to support opinions based on clinical observations. Obviously, we can accomplish no more through the clinical use of a drug, however extensive our knowledge of its pharmacology may be, than was accomplished formerly by one who chanced to discover the correct way of employing it, and it is probable that William Withering used digitalis with success equal to that of many of the clinicians of today.

Nothing could be farther from our purpose than to attempt to belittle exact pharmacologic investigations; but it is true that pharmacologists and chemists are responsible for much of the misunderstanding that exists today regarding this drug. On the other hand, many of the older clinicians were acute observers; and, while their deductions may have been faulty at times, these were often founded on fact. This should serve as a warning to us against dismissing long established clinical opinions without attempting to understand the basis for their existence, and to explain wherein the error lay when such is proved to exist. With the clearing away of misconceptions, the use of the drug will approach the state in which the general practitioner will be able to use it even more wisely than Withering employed it. We shall therefore discuss briefly the basis for the view that the constituents of the infusion of digitalis differ in kind from those of the tincture.

It is not our purpose to discuss the chemical nature of the active principles of digitalis, or their solubilities except as may be necessary for an understanding of the question of the composition of the tincture and the infusion.

COMPOSITION OF TINCTURE OF DIGITALIS

Digitoxin, digitalin and digitalein, the three principles generally supposed to represent the activities of the leaf, are soluble in alcohol, and all of these (if, indeed, they exist in the leaf) are present in the tincture; and it may be stated at once that the official tincture represents the activity of the leaf completely, that is to say, that the tincture contains all except traces of the active principles of the dried and powdered leaf from which it is made.

There is no way of estimating the total amounts of the several active principles in the leaf or in the tincture directly; therefore the following method was used in order to determine whether the tincture represents the leaf fully:

A tincture was prepared according to the directions of the United States Pharmacopeia, and the marc (the drug left in the percolator after extraction) was dried and weighed. The dried marc weighed just half as much as the drug weighed previous to extraction; this was odorless and tasteless, or nearly so. This in itself points strongly to the removal of all the active principles during percolation, for all of them are very bitter, and nothing is destroyed during the simple process of extraction with the menstruum consisting of three volumes of alcohol and one of water.

An infusion was then prepared by pouring 1,000 c.c. of boiling water on 7.5 gm. of the dried marc, representing 15 gm. of the original digitalis from which the tincture had been made, and this infusion was tested in order to determine whether it contained any active substance.

The intravenous injection of 150 c.c. of this infusion of the marc per kilogram of body weight was without perceptible effect, though this dose was equal in volume to about twenty-five times that required of an infusion of this specimen of digitalis to cause death. The cat then received a further intravenous injection of the full average fatal dose of ouabain before death resulted, showing conclusively that the infusion of the marc (and the marc itself) contained not more than traces of water-soluble active digitalis principles.[1]

The presence of saponin-like bodies (digitonin or digit-saponin) in digitalis has given rise to much discussion. These substances are devoid of the therapeutic action of digitalis, but, on the other hand, they may be deleterious when large amounts are injected intravenously, and their significance in digitalis therapy is frequently misunderstood. The gastric disturbance which sometimes follows the oral administration of tincture of digitalis has been attributed largely, but erroneously, to these substances, though Cushny [2] states that the tincture contains less of these than the infusion. Presumably Cushny means the tincture made from a given weight of drug contains less than the infusion, which represents an equal weight of the drug.

We are not aware of any direct experimental evidence on which this statement is based, but one frequently sees it coupled with the explanation that these saponin bodies are insoluble in alcohol. This deduction is misleading in that while they are insoluble in absolute alcohol, the official tincture is made, as previously stated, with a menstruum of about 70 per cent. alcohol. We have therefore attempted to determine whether the marc left after preparing the official tincture contains saponin-like bodies or not, and if so, the approximate amount as compared with that present in the official infusion, though the matter did not appear to us to be of great practical importance, because it is well known to pharmacologists that the leaf contains only small amounts of these bodies, and even these amounts are not absorbed readily from the gastro-intestinal tract, nor do they cause local irritation in amounts at all comparable to those that can ever be administered during the therapeutic use of digitalis.

PRESENCE OF DIGITONIN

Kiliani,[3] who is probably the greatest living authority on the chemistry of digitalis, states that digitalis leaves contain only traces of digitonin, and he also says [4] that Boehm found that digitonin causes gastric irritation in dogs only after the oral administration of enormous doses. These results attributed to Boehm have been confirmed by experiments in this laboratory. Unfortunately for the cause of scientific therapy, the fallacy regarding the supposed rôle of digitonin in the production of gastric disturbance following the administration of the tincture of digitalis in therapeutic doses appears to us to have been kept alive largely from motives of financial interest; at least, we have been unable to discover any evidence to support the theory mentioned, and an advantage sometimes claimed for proprietary substitutes for the official preparations of digitalis is that they lack the irritant or disturbing effect of these saponin-like bodies.

We undertook to compare the laking action of an infusion prepared from the powdered leaf with that of one made from the marc of the tincture, but the laking action exerted on partially washed corpuscles (obtained by mixing blood with 100 parts of physiologic

1. The use of ouabain in this experiment is based on what is termed the "combined ouabain" method for the estimation of small amounts of digitalis bodies, which was described by Hatcher and Brody (Am. J. Pharm. **82**: 360, 1910). This method consists in determining the difference between the average fatal vein dose of ouabain for the cat per kilogram of weight and that required to kill after the previous injection of a dose of any digitalis body. The difference represents the percentage of the fatal dose that is attributable to the digitalis body under investigation.

2. Cushny: Pharmacology and Therapeutics or the Actions of Drugs, 1918, p. 399.

3. Kiliani: Arch. d. Pharm. **243**: 7, 1905.

4. Kiliani: Arch. d. Pharm. **230**: 260, 1892.

sodium chlorid solution and allowing the corpuscles to settle to the bottom of the vessel) was so feeble in both cases that we abandoned further effort in this direction.

We found that the intravenous injection of digitonin (Merck's) in doses of 20 mg. per kilogram of body weight caused hematuria in three experiments on cats, and, on the other hand, the intravenous injection of an infusion of the marc of the tincture in doses of 150 c.c. per kilogram of weight produced no perceptible effect. From this we may conclude that very little digitonin remains in the marc of the tincture and whether or not the tincture contains more than traces of it, the difference between the amounts of it present in the tincture and in the infusion of corresponding amounts of the drug are of no therapeutic or toxicologic importance.

The subject does not seem to us worth further consideration in view of what has been said, especially since we have such high authority as Kiliani for stating that the leaf contains only traces of digitonin.

The Pharmacopeia gives directions for the biologic assay of digitalis with the standard of activity required for the leaf, the fluidextract and the tincture, but none for the infusion; it is far more important to the clinician, therefore, to know to what extent the infusion represents the leaf from which it is made than to know whether the tincture contains more than traces of saponin bodies.

DIGITALEIN AND DIGITALIN

Digitalein is very soluble in water, and it may be accepted that any that may be present in the leaf passes into the infusion. Digitalin (the true digitalin of Schmiedeberg and of Kiliani) is also extracted by water, possibly with the aid of the saponin bodies; but neither digitalein nor digitalin is absorbed readily from the gastro-intestinal tract of animals or that of man.

Oral doses of digitalein equal to the fatal vein dose were administered to cats daily for periods of a week, and it was then found by means of the combined ouabain test that there was little persistence of action. Amounts of digitalein equal to four or five times the single fatal vein dose were administered to each of several cats through a stomach tube in single doses without inducing perceptible effects.[5]

Schmiedeberg[6] states that the absorption and behavior of digitalein are such that it is difficult to obtain therapeutic effects with it, and that digitalin is absorbed slowly and irregularly from the gastro-intestinal tract. Naunyn[7] states that German digitalin (which consists of true digitalin in part) exerts only a weak and uncertain action after its oral administration to man; and Eggleston[8] found that both digitalein and digitalin are absorbed so poorly from the gastro-intestinal tract of man (as judged by the lack of therapeutic effects) that they are unsuitable for therapeutic use.

ABSORPTION OF DIGITOXIN

Digitoxin is practically insoluble in water, and it is commonly stated that the infusion contains only traces of it,[2] or that it contains more or less of the digitoxin held in suspension by the saponin bodies. Sollmann[9] states that a 1:10 infusion (note that this is not the official) contains two thirds of the digitoxin of the leaf.

The evidence that is available to us appears to show incontrovertibly that digitoxin is absorbed from the gastro-intestinal tract of man with a far greater approach to uniformity than is either digitalin or digitalein. It is only proper to state that Schmiedeberg[6] states that the insoluble digitoxin is absorbed even less regularly than digitalin, the administration of a given amount causing pronounced effects in one case and none in another. This is apparently an example of erroneous deduction, following the view so commonly held that insolubility in water exerts a profound influence on the absorption of even those drugs which are given therapeutically in doses of a milligram. Solubility does play an important rôle in the absorption of drugs which are given in doses of a gram or more, but this factor is of minor importance with reference to the absorption of such minute amounts as one gives of digitoxin.

Naunyn[7] used digitoxin, and states as the result of clinical experience that it is absorbed completely, despite its insolubility (in water). Huchard[10] comments on the frequent lack of therapeutic success with different specimens of digitalis and says that he always gives the preference to crystalline digitaline (digitoxin) because it is uniform in its therapeutic effects. Eggleston[8] also found the absorption of digitoxin from the gastro-intestinal tract of man to be more nearly uniform than that of digitalin or digitalein; at least, he found the dose required to be less variable.

AMOUNT OF DIGITOXIN IN THE INFUSION

Having submitted evidence that appears convincing to us that digitoxin is absorbed from the gastro-intestinal tract of man, with a far greater approach to uniformity of action that is the case with digitalein or digitalin, it is increasingly important to determine whether the infusion contains only traces of digitoxin, as Cushny[2] states, or much larger amounts, as Sollmann[9] claims, for it is evident from the foregoing that the therapeutic value of the infusion must depend on the presence in it of digitoxin, if there are only these three active principles in the leaf in important amounts, or on the presence of some other readily absorbable principle not described heretofore.

There is no way of separately estimating the several active principles of the infusion, and we have approached the solution of the question in the same way that we determined that the tincture represents the leaf completely, that is, we examined the marc left after the infusion had been made.

VARIOUS METHODS OF MAKING INFUSION OF DIGITALIS

Before presenting the results of these experiments, we wish to discuss the several methods that we have employed in making the infusion, including that official in the United States Pharmacopeia, and a modification that we have used in this laboratory for several years for the preparation of infusions for use in experimental studies.

United States.—The United States Pharmacopeia directs that the infusion shall be prepared by pouring 500 c.c. of boiling water on 15 gm. of bruised digitalis and allowing it to macerate for one hour, after which the liquid is strained,

5. Unpublished experiments performed in this laboratory some years ago and recently confirmed by us in part. The digitalein of commerce is said to consist of a mixture of glucosids from Digitalis purpurea, prepared according to the process of Schmiedeberg, and containing digitoxin, digitalin and digitalein (New and Nonofficial Remedies, 1920, p. 88); and since the proportions of these three appear to vary in different specimens of commercial digitalein, we do not pretend to say that all specimens show the same behavior. In fact, it is our opinion that digitalein has no place in the materia medica while it remains so uncertain in composition and activity.

6. Schmiedeberg: Arch. f. Path. u. Pharm. **62**: 305, 1910.

7. Naunyn: Therap. d. Gegenw. **1**: 193, 1899.

8. Eggleston, Cary: Digitalis Dosage, Arch. Int. Med. **16**: 1 (July) 1915.

9. Sollmann, Torald: Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1917, p. 383.

10. Huchard: Les maladies du cœur, 1908, p. 164.

500 c.c. of cinnamon water is added to the strained liquid, and enough water is passed through the strainer (and the marc) to make 1,000 c.c.

It would be interesting to know why the Pharmacopeia directs that the drug be "bruised" instead of directing that the powdered digitalis be used. According to the pharmacopeial requirements, the leaf must be "carefully" dried, but there is no statement as to the amount of moisture allowed. The lamina of digitalis is brittle, when properly dried, and one does not speak of "bruising" a brittle substance; it is only the tough and useless midribs that resist trituration, and their presence serves to prevent the reduction of the lamina to a uniform powder, unless the trituration is prolonged; hence the degree of fineness of the "bruised" digitalis will vary widely, depending on the interpretation put on the direction to bruise the drug, and also on the amount of the contained moisture and the relative amount of midribs.

It will be observed also that only 500 c.c. of water is used in the extraction of the drug in making 1,000 c.c. of the official infusion, since the cinnamon water, constituting half of the total volume, is added to the strained liquid and not passed through the marc on the strainer. Furthermore, not all of the infusion held in the marc is removed by the water which is passed through the strainer to make up the required volume.

British.—The British pharmacopeia directs that the infusion be prepared by pouring 1,000 c.c. of boiling water on 7 gm. of digitalis in No. 20 powder, allowing it to stand for fifteen minutes, and straining while hot. It will be observed that this process involves the use of less than half as much drug as that of the United States Pharmacopeia: that a uniform powder is directed; that the solvent action of all of the liquid is utilized, though for a shorter time, and that the finished infusion is not diluted by passing water through the strainer.

Authors' Method.—The infusion that has been used so frequently in this laboratory for experimental purposes has been prepared essentially as follows: One thousand c.c. of boiling water is poured onto 10 gm. of digitalis in No. 60 powder in a flask or beaker, which is allowed to stand for one hour in a boiling water bath with frequent stirring of the infusion, in order to expel the air from the cells, thus facilitating extraction, water being added to replace that lost by evaporation; the infusion is cooled, and filtered through paper, or filtered while hot, when it is desired to maintain it in a sterile condition.

PRACTICAL TESTS OF VARYING METHODS

Infusions were prepared in the official way and in that just described, after which the marc was washed free of the adhering infusion, or this was gotten rid of by pressing the marc between layers of filter paper, adding a small volume of water and again expressing. The marc was then dried and weighed, after which tinctures were prepared and examined for their activity by testing them on cats. We are aware that the washing of the marc with about 200 c.c. of water involves a slight error; but if 1,000 c.c. of boiling water fails to extract the active principles, we do not believe that the error involved in washing this marc with 200 c.c. of cold water is of any importance. In some instances we estimated the activity of the infusions directly, in order to compare the activity of those prepared in different ways.

RESULTS

The results of these experiments may be presented briefly without giving the protocols in detail.

An infusion made according to the official (U. S. P.) formula was not quite so active as one made in the same way, except that 1,000 c.c. of boiling water was poured on the "bruised" leaf. The activity of the official infusion was such that 6.3 c.c. was required for each kilogram of body weight of the cat to cause death (average of two fairly concordant experiments), while an average of 4.4 c.c. was required of the second infusion per kilogram of weight (average of two fairly concordant experiments). It will be seen that the activity of the official infusion was only about 70 per cent. of that of the second, which represented about 90 per cent. of the activity of the leaf; at least, the tincture prepared from the marc of the second specimen was about one-tenth as active as an average tincture, while the tincture prepared from the dried marc of the official infusion was about one-fifth as active as the average tincture of good quality. These tinctures were evaporated to expel the alcohol, after which they were diluted with physiologic sodium chlorid solution before being tested on cats in the usual manner.

When the infusion was prepared by pouring 1,000 c.c. of boiling water on 15 gm. of digitalis in No. 60 powder, its activity, indicated by the direct tests on cats, was equal to that of the tincture prepared from the same amount of this specimen of drug, and, since we have seen that the tincture exhausted the drug completely, it would appear that the infusion also represented the full activities of the powder in this case. However, the activity of the tincture made from this marc was equal to about 4 per cent. of the activities of the leaf, the discrepancy being within the limits of error, so far as the direct test of the infusion (two experiments) is concerned; but the test of the tincture of the marc showed conclusively that at least a very small part of the active principles actually remained in the marc.

The infusion made by pouring 1,000 c.c. of boiling water on 10 gm. of the No. 60 powder represented the drug even more completely than in the case just mentioned, and the tincture prepared from the dried marc of this infusion was practically inert; at least, the injection of the tincture (after evaporation of the alcohol) representing the marc of 3 gm. of the drug was without effect, and the animal then required 90 per cent. of the average fatal dose of ouabain to cause death, indicating that the marc was about one three-hundredth part as active as the drug before infusion. This affords satisfactory evidence that 100 parts of boiling water suffice for the extraction of all of the active principles of the drug in No. 60 powder when maceration is continued for an hour.

In one case the drug was used in the form of No. 80 powder in the proportion directed by the Pharmacopeia, 15 gm. for 1,000 c.c. of infusion, after which the activity of the marc was equal to about 3 per cent. of that of the original powder. This indicates that the finer powder is somewhat more nearly exhausted by that volume of water than is the coarser, since the activity of the marc of 15 gm. of No. 60 powder was slightly greater than this;[11] but when a smaller proportion of drug is used, the finer powder is not necessary, and an infusion made from the latter is tedious to strain or filter.

VARIABILITY OF OFFICIAL INFUSION

It hardly required the present study to arrive at the conclusion that the official infusion lacks uniformity. The long standing and extreme diversity of competent clinical opinion alone would suggest this strongly, and the method of completing the required volume of the finished product by passing water through the strainer must result in some variation in the activity of the infusion, even though the formula were faultless in other particulars. A given volume of infusion is made from 15 per cent. of the weight of the drug that is used in making such a volume of the tincture, but the activity of the average infusion is probably equal to less than 10 per cent. of that of the tincture, as indicated by the biologic test, and the difference in therapeutic effectiveness is probably much greater as a rule, because the deficiency in extraction in making the infusion falls wholly on the least soluble but the most absorbable fraction, the digitoxin or the digitoxin-like substance.

From this a somewhat paradoxical situation arises. It is well known that many druggists prepare a so-called infusion by diluting the tincture or fluid-

11. We have found that the removal of air from the cells of the drug by means of a vacuum pump facilitates extraction with water. The particles of a No. 60 powder have a diameter of 0.23 mm., and those of a No. 80 powder, 0.17 mm.; hence the latter are less than half as large as the former.

extract, while those who take pride in their profession make the infusion according to pharmacopeial directions, and it may happen frequently that the so-called infusion prepared from the fluidextract will contain more of the digitoxin than a strictly official infusion prepared with great care, and the preparation that should be condemned by all rules of scientific pharmacy will then give better therapeutic results than the one prepared conscientiously. This is in no sense an argument for slipshod pharmacy, but it is an argument for improvement in the official formula for preparing the infusion.

ADVANTAGES OF INFUSION PREPARED BY METHOD HEREIN DESCRIBED

The infusion prepared in the manner described, in which 1 part of digitalis in No. 60 powder is treated with 100 parts of boiling water and kept for one hour in a boiling water bath with frequent stirring, contains all of the active principles of the leaf. When this infusion is filtered and used therapeutically, the effects are the same as would be induced by the tincture in doses just one tenth as large. If one desires the cinnamon flavor, this may be secured by adding 1 c.c. of oil of cinnamon to 10 gm. of the powdered digitalis previous to the addition of the boiling water. Very little of the volatile oil is lost during the process of preparing the infusion.

An infusion thus prepared has these advantages over one made according to the present Pharmacopeial method:

1. There is better extraction, whereby the infusion represents the activities of the drug completely.
2. There is uniformity of activity, in place of the variability of the official.
3. With a given degree of activity it contains a larger proportion of the slightly soluble, but more readily absorbable, digitoxin or digitoxin-like substance, or substances.
4. The dosage is just ten times that of the tincture in volume.
5. The filtered infusion is transparent.
6. It may be kept indefinitely without loss of activity.

STABILITY OF INFUSION

We are not at present concerned primarily with the question of the stability of the infusion, but we wish to correct some erroneous views that are prevalent concerning the question, for it is useless to show the way to make an infusion properly if the preparation is valueless, because of the rapidity with which it decomposes, as some believe.

No one denies that the infusion of digitalis decomposes under adverse conditions—like all other infusions of drugs that contain no antiseptic—but the question that concerns the clinician who, for any reason, prefers to employ the infusion, is whether it can be prepared conveniently in a reasonably stable form. Hatcher and Eggleston [12] have shown that the infusion of digitalis prepared in the manner recommended here, and filtered while hot, retains its activity with little change for several weeks when kept with reasonable care. We are able to offer evidence confirmatory of this conclusion.

One of us (R. A. H.) prepared an infusion of digitalis in the manner described, using 1 part of the powdered leaf to 100 parts of boiling water, filtering the infusion while hot, putting it into bottles which it filled completely, corking these, and sealing them with paraffin, Feb. 5, 1918. Specimens of this infusion have been tested on cats from time to time, and no perceptible loss of activity could be detected at the time of the last examination. A slight precipitate has formed in every bottle, leaving the supernatant fluid perfectly transparent, and in a few there has been a growth of mold, owing to imperfect sterilization of the corks.

THERAPEUTIC EFFECTIVENESS

Dr. Cary Eggleston used a specimen of this infusion clinically, July 28-29, 1920, and found the dose required to induce the typical therapeutic effects to be the equivalent of that which he [5] had established for the tincture as measured in terms of cat units. A condensed report of the essential facts are presented here through the courtesy of Dr. Eggleston. The apex rate was 145, and the radial pulse rate was 73, the pulse deficit being 72 after two days' rest in bed; the infusion was then administered at 12 midnight, 6 a. m. and at 12 noon. The apex rate was reduced to 104; the radial pulse rate rose to 86, the deficit being 18, shortly before the last dose. The condition steadily improved and the pulse deficit had nearly disappeared within four hours after the last dose, and on the following morning this deficit had disappeared completely, the rate being 66.

The condition of the heart, as shown by the pulse deficit, was worse at the time the first dose of the infusion was administered than it had been twenty-four hours before, showing that rest in bed alone was not producing any improvement. The striking improvement that occurred within less than twelve hours hardly leaves room for doubt concerning the therapeutic effectiveness of this specimen of infusion that had been prepared nearly two and a half years previously. The infusion was filtered before being used, showing that the precipitate had not carried down the active principles in an insoluble form.

SUMMARY

1. Tincture of digitalis was prepared, the marc of which was dried and used in the preparation of an infusion; this infusion of marc was tested on cats and found to be inert, showing that all of the active water-soluble principles of the leaf are extracted during the percolation for making the tincture.

2. This method of testing the marc affords a delicate means of testing the degree to which the active water-soluble principles are extracted during the percolation of the drug.

3. There is no essential difference in the amounts of the saponin bodies present in the tincture and in the infusion prepared from equal weights of the leaf, and therapeutic doses of digitalis do not contain enough to induce any undesired effects.

4. Infusions of digitalis were prepared in different ways. In each case the marc was washed and dried, after which it was used for the preparation of tincture, and this tincture was tested on cats in order to determine to what extent the active principles had been extracted during the preparation of the infusion.

5. The official infusion does not represent the drug completely; hence the standardization of the leaf does not insure uniformity in activity of the infusion. The variability of the infusion is at the expense of the more absorbable of the active principles.

6. The infusion prepared according to the simple method described represents the activities of the leaf completely; hence it permits of uniformity when a standardized powder is used for making it. It may be

12. Hatcher, R. A., and Eggleston, Cary: The Stability of the Infusion of Digitalis, J. A. M. A. 65: 1902 (Nov. 27) 1915.

used in place of the tincture in doses just ten times the volume of those of the latter, and it becomes a matter of indifference, so far as therapeutic effects are concerned, which is used.

7. We have been unable to discover any experimental evidence to support the view, still held by many, that there is a necessary qualitative difference between the actions of the tincture and those of the infusion of digitalis, even when the latter is prepared properly.

8. An infusion of digitalis prepared in the manner recommended, and kept in completely filled and hermetically sealed bottles for more than two years and five months, retained its activity unimpaired, as shown by the results of tests on cats and by the therapeutic effects on man.

THE ACTION OF CASCARA SAGRADA*

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The object of the present note is to call attention to some important untoward actions of a much misunderstood, perhaps overpopular drug. If one reads, without great care, some textbook dissertations on the action of cascara, he is led to believe that it is an ideal drug and fool proof. Such, however, is far from the fact, and its use should be confined to those cases in which from 1 to 2 c.c. of the fluidextract has a definite action. Larger doses would seem to do more harm than good.

Some of the recorded effects of cascara are: It is a bitter and a stomachic. It improves appetite and digestion. It stimulates and is a tonic for the intestine. The susceptibility to it is not lost by long use, and it does not cause constipation as many other such drugs; on the contrary, the establishment of regular habits permits it to be gradually withdrawn. In addition to these standard or accepted actions, it has been recommended for a number of other conditions in which its benefits, if any, depend on its cathartic action. For example, it has been lauded as a cholagogue; "in headache due to retention of cholesterin"; in chronic gastric catarrh; as a cure for dysentery, and in syphilitic ulcerations, enuresis, etc. Many of these influences were observed only in what we may term the acute, testimonial or enthusiastic stage of the evidence. The dose of the fluidextract is given at one-quarter to 2 teaspoonfuls (from 1 to 8 c.c.) or the smaller dose three times a day, which is by far the more preferable method. It is classified as a vegetable "cathartic." This classification is exceedingly misleading, since the drug should never be used except as a laxative. It is especially the dosage and the cathartic action to which I wish to draw attention.

In a limited number of cases of constipation in which I administered a dosage of 2 c.c. there was a relatively large percentage of patients who complained of griping accompanied by nausea before the drug acted. I find that this is so common an experience that some physicians have practically discontinued the use of cascara.

Wiltrout[1] was among the first to give a written opinion on the action of cascara. This opinion seems to have been generally accepted by the profession, but requires reinvestigation. One cannot doubt some of the facts, however. I will give an abstract of this opinion, so far as it deals with cascara sagrada alone:

> The samples met my highest expectation. I used them in cases of constipation characterized by atony or paresis of the muscular coat of the bowels. They gave free evacuations in doses of from 30 to 50 drops, with no pain and materially improved appetite. The common experience was that a diminished dose was needed to assure the daily purpose. . . . It wonderfully accelerates the action of sodium phosphate and arrests sick headache promptly, and does not deplete the system. . . . I have used it in a large number of cases . . . as a laxative and cathartic, but it is a little nauseating.

The "squeamish" action noted by Dr. Wiltrout has also been observed following the administration of preparations of the bark of *Rhamnus frangula*.[2]

Recently I have made a number of experiments (more than twenty) on medical students and assistants, and on myself, which I think worthy of record. We used the fluidextract of two leading manufacturers. The aromatic fluidextract is much less effective.

RESULTS OF EXPERIMENTS

One c.c. will cause a laxative effect, usually one movement of the bowels, in from eight to twelve hours. There is little if any griping in these cases. Occasionally this amount of the drug is without noticeable effect.

Two c.c. will cause two movements of the bowels in from five to twelve hours. There is usually considerable griping from this dose, which begins in about four hours and may last twenty-four hours.

Four c.c. causes three or four movements of the bowels, always accompanied with painful griping and some nausea. This griping may persist for two or three days, and the abdomen is somewhat tender; there is a desire to go to stool when no necessity exists. An indefinite uncomfortableness persists for several days.

COMMENT

All these points are recorded in some textbooks, especially if one reads between the lines; but the supposed virtues of this drug are so unduly emphasized and impressed on the mind that the average practitioner forgets the undesirable actions. The fact is that cascara should never be used as a cathartic but only as a laxative. When more than 2 c.c. is needed, some other drug should be used. Many of the supposed virtues of cascara are possessed by liquid petrolatum and by phenolphthalein. The correct dosage of cascara has been emphasized by Hare,[3] who states that more than 2 c.c. of the fluidextract often produces irritation of the bowel, and enteritis and intestinal catarrh. Its continued use tends to produce hemorrhoids in some persons. In my own case, confirmed by others, I am willing to accept this as the true statement of the action. The abdominal tenderness and griping, and indefinite abdominal symptoms indicate a congested or inflammatory condition. I did not feel justified in administering larger doses of this drug, and none of those taking 4 c.c. volunteered for this purpose. In fact, they did not wish any more cascara. However, I have studied the effect of massive doses on dogs. Before recording these, I should mention Bastedo's[4] patient, who swallowed 30 c.c. of the fluidextract by mistake. There was excitement, hallucination, weakness of the legs, and collapse, from which the patient recovered. Bastedo does not record griping or other untoward symptoms. With such a

* From the Laboratory of Pharmacology and Therapeutics, University of Illinois College of Medicine.

1. Wiltrout, I. D.: Am. J. Pharm. **57**: 498, 1885.
2. Wiltrout, I. D.: Am. J. Pharm. **57**: 499, 1885.
3. Hare: Practical Therapeutics, Ed. 18, 1920. The National Dispensatory, 1916, p. 414.
4. Bastedo: Materia Medica, Pharmacology and Therapeutics, 1915, p. 122.

large dose one might expect vomiting, but this rarely occurs. It should be noted that preparations of recent bark have a tendency to produce vomiting and epigastric pain; large doses of the matured preparations still retain some of this property. Busey [5] reports a case in which 4 drams was given to a patient by mistake, instead of ergot. No especial toxic symptoms are recorded, but the patient was in such a state of great depression that only pronounced changes would have been noted.

Fenn [6] reports several cases of the untoward effects of cascara after "moderate doses" in which there was vomiting; heat and griping; traces of blood in the evacuations; increase of flatulence; abdominal tenderness, and mental aberration. In one case death followed the taking of cascara. In none of these cases, however, does he give the dose taken. The cases of mental aberration and death occurred in old people who had prepared their own decoction from the dried bark. Cotter [7] reports a case in which a dram dose, given at night and repeated in the morning and at noon, evoked symptoms resembling cholera morbus. In a second case in which a woman took a dram dose at night and repeated it in the morning, there was great prostration and feebleness.

A few practitioners have told me they have used this dose three times a day over long periods with good results. This is against the verdict of the literature, and better results for long continued use seem to be obtained with smaller doses. Wood [8] gives the dose of the fluidextract preparation as from 2 to 8 c.c., which is manifestly far too great, especially since we have better cathartics when such large doses are needed.

The dose of cascara sagrada for a dog as a laxative is from 0.5 to 4 c.c.[9] If from 30 to 60 c.c. is given to a dog it produces excessive diarrhea, often vomiting, and an inflammatory condition of the whole gastrointestinal tract. From 4 to 8 c.c. will also cause profuse diarrhea; but I have not observed vomiting with this dose. The profuse and persistent diarrhea indicates some inflammatory reaction. Great congestion was found by Tangeman [10] also in dogs after this dose.

SUMMARY

Large doses of cascara sagrada may produce an inflammatory condition of the bowel, with pronounced nausea and griping. The nausea may be produced by the therapeutic doses recommended in some textbooks. It only rarely leads to vomiting. Cascara should be used only as a laxative, never as a cathartic. When more than 2 c.c. of the fluidextract is needed to produce a laxative effect, another drug should be added or substituted. Small doses several times a day seem to give better results than the sum of these doses given in a single dose.

5. Busey: Am. J. Obst. **20**: 929, 1887.
6. Fenn, C. M.: Therap. Gaz. **12**: 522, 1888.
7. Cotter, R. O.: Atlanta M. & S. J., March, 1888, quoted by Fenn (Footnote 6).
8. Wood: Therapeutics, Its Principles and Practice, Ed. 14, p. 507.
9. Dun, Finlay: Veterinary Medicines, 1910, p. 448.
10. Tangeman: Therap. Gaz.: **7**: 485, 1883.

Cost Per Patient in London Hospitals.—According to the statistical report of the King Edward's Fund, the average cost per occupied bed in 1919 worked out at £163 13s. 6d., or approximately £3 5s. per week for the hospitals having medical schools (with the exception of St. Bartholomew's), and at £140 10s. 3d., or approximately £2 14s. per week, for the larger general hospitals without medical schools.—*Med. Officer* **24**:232, 1920.

MASSIVE INFECTION OF A VACCINATED PERSON WITH BACILLUS TYPHOSUS *

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That typhoid vaccination produces a high degree of immunity is proved by army statistics, and the fact is generally accepted today. However, no proof has been available that such vaccination could protect against massive infection.

This case of massive infection with *B. typhosus* is reported on account of the rarity of such an occurrence.

REPORT OF CASE

Oct. 16, 1920, Private First Class F. L., a technician in the Laboratory, Eighth Corps Area, while working with a heavy suspension of living *B. typhosus* (K 110, Army Medical School strain) sucked a quantity of this culture suspension through the cotton plug of the pipet into his mouth, the quantity being approximately 0.5 c.c. He immediately reported the fact and washed his mouth thoroughly, three times, with 50 per cent. alcohol.

This soldier had had measles, whooping cough, diphtheria and scarlet fever, but denies having had typhoid fever or any continued fever that might have been typhoid. He was last vaccinated with triple typhoid (saline) vaccine, Aug. 16, 1919, or one year and two months prior to his infection. He was at once given 0.5 c.c. of triple typhoid vaccine in the hope of increasing his immunity.

October 21, four days after infection, the soldier complained of slight headache, but had a normal temperature. No further symptoms appeared until October 24, the eighth day after infection, when he complained of slight headache and weakness. His temperature was normal. A blood culture was negative. This greatly relieved the soldier's anxiety and he had no further symptoms of note.

October 28, a specimen of feces was collected and plated on Endo medium in the usual manner. The typhoid-like colonies appeared in a proportion of about 1:10 of *B. coli*. These were picked and proved to be *B. typhosus* by the customary sugar and serum reactions. This fact was not revealed to the soldier, and other symptoms did not appear. He was watched closely from this time on and was allowed to continue working in the laboratory. His stools were repeatedly examined, and they have continued to be negative for typhoid since October 31.

SUMMARY AND COMMENT

A person giving no history of ever having had typhoid fever, but having been vaccinated with triple typhoid vaccine, received a massive dose of living *B. typhosus*. Four days later he had a headache and feeling of malaise, and on the eighth day headache and weakness. No further symptoms ever developed. On the twelfth day after infection, *B. typhosus* was present in his stools, but by the fifteenth day they had disappeared and have not been found since that time.

This case is interesting since it demonstrates that, in certain cases at least, typhoid vaccination will protect against even massive infection. The dose was enormous and must have been many thousand times the usual infecting dose. That the man was actually infected was proved by the recovery of the typhoid bacillus from his stools. But it could not be found in his blood, and at no time did he have fever. He has remained well for seventy-five days. No similar case is known to be on record.

* From the laboratory, Eighth Corps Area.

HYDROSALPINX WITH TWISTED PEDICLE

REPORT OF CASE

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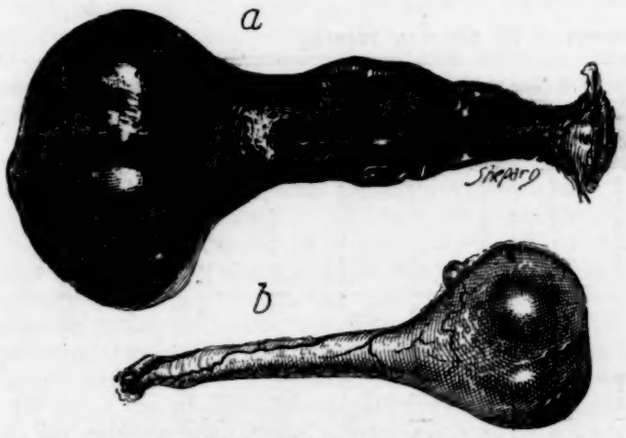
OMAHA

I report this case because of its unusual occurrence.

REPORT OF CASE

A woman, aged, 27, married twelve years, with no children, no miscarriages and no history of any infection in the past, was seen in consultation because of a continuous pain in the right inguinal region for the preceding twelve days, which began suddenly, with moderate severity, until four days after the onset, when the pain suddenly became severe, accompanied by spells of nausea followed by vomiting. No possibility of a venereal infection could be elicited from the patient or her husband. Menstruation began at 14 and was always regular; distress was very slight, with a moderate loss of blood averaging ten days.

Examination revealed a cystic mass in the culdesac, about 3 inches in diameter, tender but movable. It could also be palpated through the abdominal wall. The temperature was 98.6, pulse 68, urine negative, but a blood count was not made.



Twisted right hydrosalpinx and left hydrosalpinx.

At operation the right tube was filled with dark blood, forming a tumor about 5½ inches long and 2½ inches wide, which was entirely free from adhesions, but twisted on its pedicle about 1 inch from the uterus. On first glance it resembled an extra-uterine pregnancy. On the left side was a hydrosalpinx about 4½ inches long and 1½ inches wide at the distal end, not adherent and with no signs of ever having been infected. There were no fimbriae on either tube, the distal extremities being smoothly healed. The ovaries and tubes were apparently normal. Both tubes were removed, and the patient made a good recovery.

COMMENT

In the absence of adhesions, no evidence of infection at any time and the smooth closure of the distal extremities, a congenital malformation was strongly suggested which had resulted in a simple hydrosalpinx. No doubt a unilateral hydrosalpinx of a congenital or acquired type is liable to become twisted, as shown by several reports in the literature.

Such tubes, no doubt, are subject to infection through the uterine cavity and the blood stream. Perhaps a certain percentage of cases of double pyosalpinx were previously of this type, the infection destroying all evidence of a previously congenital double hydrosalpinx.

Hydrosalpinx with a twisted pedicle has been reported only nine times, so far as my search of the literature[1] could determine. Pyosalpinx with a twist and ovarian tumors including the tube with a twist I am not considering in this report. The clinical picture appears much less alarming than the one presented by a twisted ovarian tumor. It is a distinct entity to be considered when the history and physical findings suggest a very recent cystic pelvic tumor, which has persisted over a number of days without alarming symptoms.

Brandeis Theatre Building.

THE RETINITIS OF DIABETES MELLITUS

PRELIMINARY REPORT

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AND
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The occurrence of retinal lesions in cases of diabetes mellitus is an established fact; but retinitis characteristic or diagnostic of diabetes, comparable with the retinitis of nephritis, must still be regarded as unproved. Many writers have asserted that there is a retinitis pathognomonic of diabetes, while others have emphasized the apparent identity of the retinitis of diabetes and of nephritis, at least in their ophthalmoscopic features. It seems probable that this difference of opinion has arisen because of the many clinical forms of retinal changes seen in diabetes and partly because of the many clinical types of diabetes itself. Unfortunately, most writers on ophthalmology discuss diabetes and the retinitis of diabetes as single entities.

Hirschberg,[1] in 1890, suggested the division of the retinal lesions of diabetes into three groups:

1. An entirely characteristic inflammation of the central region of the retina with small bright spots, usually also with hemorrhagic points (retinitis centralis punctata diabetica).

2. Hemorrhages of the retina with the resulting inflammatory changes and degenerations (retinitis hemorrhagica diabetica).

3. Rarer forms of retinal inflammation and degeneration, the connection of which with the primary disease is yet to be demonstrated (such as pigmentary retinitis).

Hirschberg[1] believed that central punctate retinitis is due to the diabetes alone; the occasional presence of albumin in the urine, in his opinion, has no bearing on the retinitis. He recognized, however, that, in certain cases, in addition to the punctate retinitis, edema and exudates suggestive of nephritis appear. These he spoke of as mixed forms. They really constitute a fourth group. He believed that diabetic hemorrhagic retinitis is associated with arteriosclerosis, probably of the smaller retinal vessels, retinal vascular changes not

1. Albertin: A propos des hydro-salpinx et de la torsion du pédicule, Bull. Soc. de chir. de Lyon **8**: 292-295, 1905; one case. Alfieri, E.: Idrosalpinx con torsione complicato del peduncolo, Boll. d. Soc. med. chir. di Pavia **22**: 17-26, 1902; one case. Cathelin, F.: De la torsion des hydro-salpinx, Rev. de chir. **21**: 253-282, 406, 1901; one case. Lop: Hydrosalpinx; torsion du pédicule; ictère; laparotomie; pleurésie, hémorrhagique bi-laterale; autosératérapie; guérison, Gaz. d. hôp. de Paris **84**: 1496-1498, 1911; one case. Stein: M. Rec. **43**: 702, 1918; two cases. Whitacre, H. J.: Hydrosalpinx with twisted pedicle, J. A. M. A. **66**: 1614 (May 20) 1916; two cases. Hedley, J. P.: Hydrosalpinx with Torsion of the Pedicle, Proc. Roy. Soc. Med., Obst. Sect. **1**: 95, 1907-1908; one case.

1. Hirschberg, J.: Ueber diabetische Netzhautentzündung, Deutsch. med. Wchnschr. **16**: 1181-1185, 1236-1239, 1890.

being commonly demonstrable ophthalmoscopically in diabetic patients. He did not regard the forms of retinal inflammation in the third group as truly diabetic in origin. It is of interest to note that all of Hirschberg's patients with retinitis were more than 40 years of age.

To these types of retinitis, Schöbl [2] added a fifth type, which he termed "albuminuric retinitis in eyes of diabetics." He included in this group cases in which he considered the retinitis to be due to a complicating nephritis and to have no dependence on the previously existent diabetes.

Dodd,[3] in 1895, reviewed the literature to that date and tabulated all the reported cases, forty-seven in number, of "pure diabetic retinitis," using as the basis of this diagnosis the absence of albumin from the urine. Forty-one of the forty-seven patients were more than 40 years of age, and the average duration of the diabetes was 4.6 years. All of Hirschberg's groups were represented, and no effort was made to determine the difference in the etiology in the various cases.

AUTHORS' INVESTIGATION

In the spring of 1920, in the course of a statistical study of the clinical types of diabetes mellitus encountered in the Mayo Clinic, it was observed that retinal lesions had been found only in patients with the mild form of diabetes, usually associated with arteriosclerosis. This observation led to a more careful examination of diabetic patients for retinal lesions.

After this investigation had been begun, it was found that Onfray [4] had published the results of a similar research from which he had concluded that the diabetes causing retinitis is often benign and frequently associated with vascular hypertension and nephritis. Twenty-five per cent. of his patients showed normal kidney function and no vascular hypertension; 50 per cent. had hypertension and some renal damage, and 25 per cent. had definite nephritis. He considers the "central dot-like retinitis" to be the purely diabetic retinitis. He does not consider Hirschberg's other forms in detail. In 1920, Garrod [5] stated before the Congress of the Ophthalmological Society of the United Kingdom that diabetic retinitis and albuminuric retinitis are associated with high blood pressure and arterial changes, and that most of his diabetic patients with retinitis showed evidences of renal disease. It the same meeting Moore [6] stated that in his diabetic patients retinitis had been confined to patients more than 39 years of age and was usually associated with arteriosclerosis.

Our series is composed of forty-four cases of retinal disease observed in the Mayo Clinic since Jan. 1, 1920, in the course of a study of 300 patients with diabetes. In about eighty cases of diabetes characterized by acute onset and progressively increasing severity, so-called diabetes gravis, no patient showed retinal changes. Retinitis occurred exclusively in diabetic patients with mild, easily controlled glycosuria in whom evidence of vascular disease was always present. We were nevertheless impressed by the fact that the retinal lesions were in some respects different from those seen in nondiabetic vascular disease. All of Hirschberg's types of retinitis undoubtedly occur, and any one of them except the third should suggest the diagnosis of diabetes. We have been able at least twice to make such a diagnosis from the ophthalmoscopic findings alone in the temporary absence of sugar from the urine. We believe, therefore, that the retinitis of diabetes is the retinitis of cardiovascular-renal disease, modified in appearance and in stage of occurrence, possibly by the metabolic disturbances associated with the diabetes.

DATA REGARDING FORTY-FOUR PATIENTS WITH RETINAL DISEASE

		Age		Diabetes		Systolic Blood Pressure		Phenolsulphonephthalein Excretion				Blood Urea	
Ophthalmoscopic Diagnosis	Cases	Below 40	Above 40	Less Than 3 Yrs.	More Than 3 Yrs.	Below 150 Mm.	Above 150 Mm.	Below 30 per Cent.	Between 30-40 per Cent.	Between 40-50 per Cent.	Above 50 per Cent.	Below 40 Mg. per 100 C.c.	Above 40 Mg. per 100 C.c.
Hypertension arteriosclerosis	13	..	13	6	7	2	11	..	1	5	4	4	2
Arteriosclerotic retinitis	2	..	2	1	1	1	1						
Central punctate retinitis	2	..	2	..	2	1	1	..	..	1			
Diabetic hemorrhagic retinitis	9	..	9	2	7	1	8	..	..	5	2	2	
Vascular hemorrhagic retinitis	2	..	2	2	..	1	1	..	1	1			2
Diabetic albuminuric retinitis	8	..	8	..	8	3	5	2	4	..	..	3	2
Albuminuric retinitis	2	..	2	..	2	..	2	2	..	..	..	..	2
Total	38	..	38	11	27	9	29	4	6	12	6	9	8
Atypical Cases:													
Inactive chorioretinitis	1	1	..	1	..	1	..	1					
Hyperemia of optic disk	1	1	..	1	..	1							
Optic neuritis	1	..	1	1	..	1							
Pigmentary retinitis	1	..	1	..	1	..	1						
Retinal edema	2	..	2	1	1	2							
Total	6	2	4	4	2	5	1	1					

In cardiovascular-renal disease there are degrees of retinal involvement which indicate stages of the vascular and of the renal process. In a similar manner, the various types of diabetic retinitis mark the degree of vascular and of renal pathology complicating the diabetes. They do not, however, indicate the severity of the diabetes, the more severe forms of retinitis occurring frequently in the mildest types of this disease. In the presence of diabetes, retinal changes seem to appear at an earlier stage of the vascular or renal disease than in uncomplicated arteriosclerosis or nephritis. Hirschberg's "central punctate retinitis" corresponds to "arteriosclerotic retinitis" (Moore [6]) with little or no renal insufficiency, and has thus been spoken of by some writers as "pure diabetic retinitis," since albumin may readily be absent from the urine. In the most common type of diabetic hemorrhagic retinitis, the hemorrhages are of the small or large round nuclear layer variety and resemble those of pernicious anemia and of leukemia. Their cause is still obscure. Altered chemical or physical composition of the blood has been suggested as an explanation. Moderate vascular and renal involvement is a constantly associated factor.

2. Schöbl, J.: Diseases of the Retina, in Norris, W. F., and Oliver, C. A.: System of Diseases of the Eye, Philadelphia, J. B. Lippincott Company, 1898, **3**: 413-577.
3. Dodd, O.: Diabetic Retinitis, Arch. Ophth. **24**:206-223, 1895.
4. Onfray, R.: Retinitis in Diabetes, Ann. d'ocul. **155**: 533, 1919; abstr. Am. J. Ophth. **2**: 764, 1919.
5. Garrod, quoted by Dickinson, H.: Ophthalmological Society of the United Kingdom, Am. J. Ophth. **3**: 606-611, 1920.
6. Moore, R. F.: The Retinitis of Arteriosclerosis, and Its Relation to Renal Retinitis and to Cerebral Vascular Disease, Quart. J. Med. **10**: 29-51 (Oct.) 1916, (Jan.) 1917.

There is another type of hemorrhagic retinitis seen in diabetic patients in which superficial flame-shaped hemorrhages predominate. This seems to be dependent on more advanced vascular and renal changes, and has therefore been termed vascular hemorrhagic retinitis. Hirschberg's mixed type, or as Schöbl calls it, diabetic albuminuric retinitis, indicates a well-marked renal insufficiency; while albuminuric retinitis, which naturally can occur in diabetics as well as in nondiabetics, appears only with a still more marked vascular and renal disease, accompanied by a definite reduction of renal function.

The accompanying tabulation of our forty-four cases, with reference to age, duration of the diabetes, blood pressure and renal function, affords these data: All except two patients were more than 40 years of age. One of the two was a patient with definite nephritis and an inactive chorioretinitis, the other had a simple hyperemia of the optic nerve which probably had no connection with the diabetes. Twenty-seven of the patients were known to have had diabetes for more than three years. In a group of thirteen in whom an ophthalmoscopic diagnosis of hypertension-arteriosclerosis had been made, eleven had systolic blood pressures above 150 mm., one had a phenolsulphonephthalein excretion below 40 per cent., five between 40 and 50 per cent., and the others more than 50 per cent. Only two had blood urea above 40 mg. for each 100 c.c. One of two patients with arteriosclerotic retinitis had a systolic blood pressure above 150 mm., both had well marked peripheral arteriosclerosis; neither had evidences of renal insufficiency. One patient with a definite diagnosis of central punctate retinitis had a systolic blood pressure of 150 mm. and a phenolsulphonephthalein excretion of 45 per cent. Eight of the nine patients with diabetic hemorrhagic retinitis had systolic blood pressures above 150 mm., and six had phenolsulphonephthalein excretions between 40 and 50 per cent. One of the two patients with vascular hemorrhagic retinitis had a systolic blood pressure above 150 mm.; the phenolsulphonephthalein excretion was 40 per cent. in one; it was not recorded in the other; the blood urea was above 40 mg. for each 100 c.c. in both. All the eight patients with diabetic albuminuric retinitis had had diabetes for more than three years; five had systolic blood pressures above 150 mm.; in all the phenolsulphonephthalein excretions were below 40 per cent., and in two, below 30 per cent. Both of the patients with albuminuric retinitis had systolic blood pressures above 150 mm.; in both the phenolsulphonephthalein excretion was below 30 per cent.; one had a blood urea of 46 mg. and the other 96 mg. for each 100 c.c.

We have not included in this tabulation two cases of low grade retinal edema, the significance of which we have not as yet determined. We regret that functional determinations are not complete for every case. This is due to the fact that, in the early stages of our investigation, we had not formed the conception of the part played by renal insufficiency.

CONCLUSIONS

1. The study of this series of cases has led us to believe that retinitis in uncomplicated cases of acute diabetes, diabetes gravis, does not occur. It was not present in eighty consecutive cases of this severe type of the disease in our group of 300 diabetic patients.

2. Cases of diabetes with retinitis of diabetic type are always or almost always complicated by vascular or renal disease, and the diabetes tends to be mild and chronic. This was true in all of the twenty-three consecutive cases of this kind found in the study of the 300 patients.

3. The primary cause of the retinitis of diabetes seems therefore to lie in the accompanying pathologic changes in the vascular system, the more essentially metabolic disturbances of the disease playing, at most, a secondary part.

INTRACRANIAL PRESSURE IN DISEASE

CHARLES E. KIELY, M.D.
CINCINNATI

The pressure of the spinal fluid is often a matter of definite importance in clinical syndromes, but is usually not measured with accuracy. The length of the spurt when the stylet is withdrawn or the rate of flow is used as a criterion. Accurate measurement requires a manometer; but in the ordinary procedure this is adapted to the mouth of the puncture needle after withdrawal of the stylet. This involves a loss of fluid which, particularly in higher pressures, reduces the reading.

With the hope of remedying this error I devised with Dr. John A. Caldwell a lumbar puncture needle which we believe eliminates such objections.[1] This is merely the usual O'Brien needle to which a by-pass has been added. To quote from our original report:

> The needle free of the glass tubing is inserted in the usual way until the operator feels certain that he has entered the spinal canal. The measuring tube is then adapted, and the stylet of the needle withdrawn to the length of the attached chain. Unlike the standard needle, this one is of a constant bore through its entire length, so that when the stylet point has passed far enough out to permit egress of fluid into the perpendicular tube there is still no avenue of escape through the end of the needle. . . . The pressure will, of course, be read directly in millimeters of spinal fluid in the graduated glass tube. When the specimen of spinal fluid is to be withdrawn it will be necessary only to remove the stylet entirely. . . . We feel that this device offers several advantages: simplicity with consequent sterilizability; freedom from the annoyance of spilling mercury; greater accuracy of reading, as the column of fluid will be thirteen and six tenths times as long as that of mercury. Finally, it is to be noted that even in the highest pressures that will be encountered, the amount of fluid set free in the device will not reach 2 c.c., which will never be a dangerous withdrawal even in tumor cases.

The makers have simplified our plan by adding a threaded butt and a shoulder to the pointed end of the stylet which prevents the latter from passing farther than is necessary to unmask the by-pass.

I am now in a position to report readings made with this instrument in thirty-one cases. In all cases puncture was made without anesthetic, and the patient was lying on his side.

Analysis of the accompanying table, which is arranged according to pressure, leads to certain conclusions:

Cases 1 and 2 probably represent technical errors due to occlusion of the needle by tissue.

Eleven cases of paresis give most variable readings. The pressure of alcoholics is decidedly low. In 1916, the neurologic service of the Cincinnati General Hospital experimented therapeutically with delirium

1. Caldwell, J. A., and Kiely, C. E.: A Simple Method of Measuring Intracranial Pressure, J. A. M. A. 74: 951 (April 3) 1920.

tremens. The pathologic condition was theoretically an edema of the brain from acidosis due to alcohol. The brain enclosed in a rigid casing could swell only by squeezing its own vessels, and as the consequent impairment of the circulation produced further acidosis, a vicious circle was established. Treatment aimed at the acidosis, i. e., alkalization with Fisher's solution intravenously, or aimed at relief of pressure—lumbar puncture—should be successful. In practice both were successful, and by combining the procedures we reduced the mortality from delirium tremens from 27 per cent. in 1916 to 7 per cent. in 1917. It is surprising, therefore, to find in two alcoholic cases pressures under that usually regarded as normal, and but one elevated.[2]

READINGS OF INTRACRANIAL PRESSURE

No.	Sex *	Age	Diagnosis	Pressure
1	♀	52	Taboparesis	25
2	♀	37	Paresis	63.5
3	♂	37	Alcoholism	110
4	♂	50	Senile dementia	111
5	♂	39	Taboparesis	115
6	♂	32	Paresis	125
7	♀	51	Postepileptic insanity	130
8	♂	41	Paresis	130
9	♀	36	Cerebellar tumor	136
10	♂	34	Delirium tremens	140
11	♂	40	Tabes	150
12	♀	21	Obsolescent cerebritis	150
13	♂	50	Paresis	154
14	♂	65	Paresis	155
15	♀	65	Cerebral tumor? Nephritis	160
16	♂	61	Paresis	161
17	♂	27	Paresis	176
18	♂	37	Paresis	192
19	♀	39	Confusional insanity	195
20	♂	52	Cerebrospinal syphilis with convulsions	200
21	♂	60	Cerebral arteriosclerosis	208
22	♂	?	Alcoholism	210
23	♂	20	Tuberculous meningitis	215
24	♀	39	Paresis	218
26	♀	38	Paresis	236
27	♀	34	Paresis	240
28	♂	?	Syphilitic endarteritis	280
29	♂	43	Paresis	393
30	♀	22	Cerebral tumor? Syphilis	400+
31	♂	43	Syphilitic myelitis	400+

*In this column, male is indicated by the symbol ♂ and female by ♀.

Two cases of tumor are reported, but in neither is the diagnosis entirely confirmed.

COMMENT ON INDIVIDUAL CASES

In Case 30, a woman, aged 22, had headache with nausea and vomiting since childhood. About three months before consulting me she had a sudden increase in the violence of the headache, and had diplopia. Both optic disks were badly choked. The spinal fluid overflowed the tube of our device, which is 400 mm. in length. She admitted intercourse, and as the spinal fluid Wassermann was ++++, syphilitic medication was pushed vigorously. Nevertheless, the optic edema continued to increase, and decompression was advised. This was to be performed in two stages by Dr. Caldwell, but after the first operation the relatives refused consent for the second stage and removed her from our observation.

In Case 9, a woman, aged 36, with the entire clinical syndrome of a cerebellopontile angle tumor, underwent decompression by a competent brain surgeon, and the cerebellum and posterior fossa were exhaustively explored without result. Five months later her symptoms returned and the lumbar puncture reading was made at that time. The low pressure may be explained by the previous operation. The appearance of spontaneous vertical nystagmus with the relapse indicated a slightly different localization, and explains the operative failure.

Two convulsive cases are tabulated. Case 7 is one of "idiopathic" epilepsy with mental deterioration. In Case 20, the patient first came under observation for a tremor of the right hand suggesting Parkinson's disease. Physical examination revealed the Argyll Robertson pupil, and the blood Wassermann test was ++++. Infection was denied, but subsequent information proved the denial insincere. Under repeated injections of arsphenamin the blood became negative. Soon after this the patient went to a sanatorium where the Wassermann test was again reported positive and arsphenamin resumed until the blood was again negative. The patient passed from my observation for five months, and I was again called because of convulsions. During the first day he had eight major seizures. Albuminuria was no greater than the convulsions would explain, and disappeared in twenty-four hours. The systolic blood pressure was 100 (forty-eight hours after the last convulsion.) Lumbar puncture was performed five days after the last convulsion, the patient being conscious, but dull and a little disoriented.

Case 15 is undiagnosed. The patient is a woman, aged 65. The chief complaint is intractable headache, which has not been relieved by any anodynes short of codein. Twelve years ago she had an operation for gastric ulcer. The operator stated that there was no malignancy, but microscopic examination was not made. There is no bradycardia, no vomiting, no papilledema or localizing signs that would confirm the suspicion of cerebral metastasis. The urine is always strongly acid to methyl red, and remains so in spite of vigorous alkalization. Only 0.6 gm. of sodium bicarbonate by mouth hourly for eight hours ever made the urine alkaline to methyl red, and the headache did not subside. The urine has never contained albumin or casts, but only 28 per cent. of phenolsulphonephthalein administered intravenously was eliminated in an hour. The spinal fluid reading of 160 mm. is unexpected whether the diagnosis is cerebral tumor or nephritis.

The highest reading is furnished by a case of myelitis (Case 31). Here, too, the fluid overflowed the top of the manometer. The symptoms are entirely in the legs, and there is no papilledema.

All of these patients were adults and not struggling. I wish to record, in conclusion, a reading made on an infant and not tabulated here. The child was crying, but was held too firmly to struggle. The fluctuation with each cry was 80 mm., a surprisingly large figure, more than half the pressure regarded as normal. In all cases fluctuations synchronous with the heart beat are noticed, but they are of insufficient amplitude to interfere with the reading.

628 Elm Street.

2. Hoppe, H. H.: The Treatment of Delirium Tremens by Spinal Puncture, Stimulation and the Use of Alkali Agents, J. Nerv. & Ment. Dis. 47: 254 (April) 1918.

PNEUMATIC RUPTURE OF THE INTESTINE

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CHICAGO

The first complete review of this relatively rare injury was published by Andrews,[1] in 1911, who described a case in which he operated, and who reported fifteen additional cases. The seriousness of the lesion, as well as its picturesqueness, prompts me to report the subjoined case:

REPORT OF CASE

History.—F. T. was admitted to Wesley Memorial Hospital, Oct. 13, 1920, at 5 p. m., with the history that two hours before, shortly after finishing lunch, another worker had placed the nozzle of an air hose close to his rectum, while he was stooping over. This was done as a joke, as it was in nearly every other accident of this nature reported. The nozzle had an inside diameter of 1¼ inches, and delivered a pressure of 85 pounds. The man immediately screamed with pain and fell to the floor in collapse.

Examination.—When he entered the ward, the patient's general appearance was that of profound shock. His face was slightly cyanosed, his respiratory efforts were scarcely noticeable. While being lifted into bed and thereafter until his removal to the operating room, he was seized with violent clonic spasms involving the muscles of the trunk.

1. Andrews, E. W.: Pneumatic Rupture of the Intestine, a New Type of Industrial Accident, Surg., Gynec. & Obst. 12: 63 (Jan.) 1911

The heart sounds were scarcely audible. There was subcutaneous emphysema over the chest. The abdomen was tremendously distended, but the distention was vastly different from that usually seen in peritonitis. The tension within the abdomen was so great that the palpating hand could make no impression on it. It was not merely rigid, it was extremely hard. The skin of the abdomen, scrotum, penis and perineum was emphysematous.

The history and the appearance of the abdomen made the diagnosis obvious. The man's condition, however, was so critical that it was doubtful whether he would survive the necessary preoperative preparation. The convulsions increased in severity and the cyanosis deepened. He was brought to the operating room in an almost moribund condition after a rectal tube had failed to relieve the tension.

Operation and Result.—Under procain anesthesia, a left rectus incision was made. The transversalis fascia was not incised, but sharp nosed forceps were pushed through in order to control the escape of air. The fascia immediately tore like wet paper under the great tension; the air rushed out with a report, and the abdominal wall dropped in. The sudden escape of air nearly proved fatal, but after a few moments the patient rallied, and his general condition seemed much improved.

Exploration revealed a tear in the convexity of the sigmoid, which admitted three fingers. For a distance of from 6 to 8 inches, the serosa was stripped off and ribboned. The colon was collapsed and practically empty. The mucosa had herniated through the tear in the serosa, and was frayed out as though it had been scraped. The mesosigmoid was studded with small hemorrhages; but there was very little blood and no loose fecal material in the peritoneum. No other lesion was demonstrable.

The tear in the sigmoid was closed and the peritoneum was sutured as well as could be with what was left of it. A loop of descending colon well above the injury was pulled out for a colostomy. The patient was put to bed and treated for shock, but died apparently without fully recovering therefrom, four hours later.

Necropsy.—This was performed by Dr. J. P. Simonds. It revealed several additional facts. The anus and rectum escaped injury, probably because of pelvic support. The colon, from the sigmoid to the splenic flexure, had become totally gangrenous, probably owing to destruction of its blood supply from the impact of the air. The remainder of the intestinal tract showed no injuries.

COMMENT

In his article, Andrews [1] reported a case of his in which operation was performed resulting in complete recovery. The damage to the sigmoid was so great that he resected it and performed a lateral anastomosis. He gathered the reports of fifteen additional cases, all of them unpublished, which showed a mortality of thirteen deaths, 81.2 per cent. Bendixen and Blything [2] reported a case of their own, in which operation was performed with recovery. They reported six additional unpublished cases. Combining their statistics with those of Andrews, the mortality averages 69.1 per cent. When no operation was performed, 8.6 per cent. of the patients recovered.

SUMMARY AND CONCLUSIONS

In most of the cases reported, the pathologic condition presents certain constant features:

1. The anus and rectum escape injury because of their outside support.

2. The sigmoid in nearly every case was the site of the injury, probably because its loop and kinked juncture with the descending colon momentarily traps the inrushing air.

3. The peritoneal coat is torn to ribbons and the mucosa protrudes.

4. There is commonly no other bowel lesion.

5. There is great intraperitoneal pressure.

The essential features of the surgical treatment are:

1. The intraperitoneal pressure should be relieved immediately, allowing the air to escape slowly, preferably by means of a rectal tube.

2. Immediate laparotomy under local anesthesia with repair of the ruptured bowel is indicated. The question of colostomy must be considered when there is extensive destruction at the site of rupture, or as in the case herein reported in which the blood supply of a considerable length of the colon is compromised, because I do not believe that resection and anastomosis can often be performed.

104 South Michigan Avenue.

2. Bendixen and Blything: Pneumatic Rupture of the Bowel, Surg., Gynec. & Obst. 19: 73 (Jan.) 1914.

THE PREPULSE DISTURBING STAGE OF ENDARTERITIS OBLITERANS *

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It can be said that endarteritis obliterans is conspicuous by the frequency with which it is overlooked in the early stages. This is made more serious by the fact that failure to recognize the disease early may prove exceptionally annoying to the physician. To illustrate: In the early stages, this intractable disease often simulates minor foot troubles. When a physician has treated a case of supposed strained arch or infectious arthritis or an ingrown toe nail and has naturally given a favorable prognosis, and the same patient loses a leg a couple of years later owing to gangrene produced by endarteritis obliterans, the result to the physician may be unpleasant, to say the least.

I am glad to say that so far as I know I was the first to advocate that a routine examination of the arteries of the foot be made in every case of foot trouble in the male.[1] "The first thing to do in such an examination is to put the finger on the dorsalis pedis," I urged. Either because of this warning or because the same thought occurred to other observers, a routine examination of the arteries of the foot is now made by most orthopedists.

From a practical standpoint a routine examination was the greatest accomplishment made in the progress of the entire disease. It has made possible a diagnosis of the bulk of cases early, whereas heretofore the diagnosis was invariably late. Still, years of further observation have convinced me that a disturbance in the pulses of the foot is not at all a sign of an early stage of the disease, as was formerly supposed, but rather a sign of a late stage. By the time the physical change in the artery can be detected, the disease has already made terrific inroads.

In order to cause the cessation or even the disturbance of a pulse, the pathologic condition must be gross and the disease must have advanced to the point at which there is occlusion either of the entire lumen or at least of the major part of the lumen of the artery; for endarteritis obliterans means not a thrombus formed suddenly, but rather a gradual proliferation of the

* Read before the staff of the Hospital for Deformities and Joint Diseases, Oct. 3, 1920.

1. Strunsky, Max: To Avoid Mistakes in the Diagnosis of Foot Troubles, New York M. J. 93: 221, 1911.

endothelial coat. By the time the disturbance in the artery can be detected by the mere finger, the disease has become so gross as seriously to cut off the blood stream. A bad pulse is therefore a sign of a late stage in endarteritis obliterans and must be eliminated from the scope of diagnosing this disease in its incipiency. This is undoubtedly the reason why in spite of the practiced routine examination of the arteries of the foot in painful foot troubles in the male, patients are still being referred to us with a history of having been treated with arches or for supposed ingrown toe nail or for infectious arthritis, whose real trouble has always been endarteritis obliterans. What makes the situation more glaring is that some of these patients were treated by excellent orthopedic surgeons. The fault is not entirely theirs, but it is the wrong teaching on the subject which accepts the pulse as the criterion of the disease.

That there are patients who have good pulse and still have endarteritis obliterans is well known to us. Empirically we have learned the fact that there are other signs for telling this disease, even before the pulse becomes disturbed.

The disease not only manifests itself by a local lesion in the arteries and veins, but also has a central lesion in the nervous system. The central lesion expresses itself through the vasomotor nerves causing a disturbance in the vasomotor balance. The function of the vasomotor nerves is to keep the coats of the vessels in tension, so that a normal volume of blood is retained in the lumen of the blood vessels. In endarteritis obliterans the vasomotor balance is disturbed. In the later stages when the arteries have already become occluded, the vasomotor mechanism is so unbalanced as to render the coats of the blood vessels in a state of paralysis. At that stage, should the leg of a patient be hanging down, it immediately becomes blue and congested; and on being elevated, the limb instantaneously becomes blanched and cadaverous looking. In this stage, the blood volume has become the slave of gravitation.

Evidences of vasomotor disturbances come on early in this disease; and with good light, good eyesight and careful examination, this sign can be brought out as one of the earliest manifestations. In comparison with the healthy and normal foot, we can detect a slight pallor of the skin when the limb is elevated, or a slight bluish tint when the limb hangs down. This sign is one of the earliest manifestations of this disease, sometimes appearing years before the pathologic condition in the arteries has progressed to such an extent as to make the interference become appreciable to the examining finger. I would therefore urge that, besides making a routine examination of the arteries of every painful foot in the male, a routine examination of the vasomotor balance should also be made.

The vasomotor balance, besides being an earlier sign than the bad pulse, is also of service as a confirmatory evidence of this disease. In borderline cases it is frequently difficult to tell whether it is the patient's pulse one feels or only the pulsation in the fingers of the examiner. The test for vasomotor balance checks up the other signs and clinches the diagnosis. The subjoined case report illustrates how the vasomotor test came to my rescue in the making of a correct diagnosis:

REPORT OF CASE

L. D., a man, aged 29, had had gonorrhea and influenza simultaneously, and was supposed to be suffering from infectious arthritis of the foot due to one or both of these causes. He was first treated with a plaster cast, and later with baking, massage and electricity. When he was referred to me there was no stiffness or inflammation in the foot. The dorsalis pedis, however, was faint. The arteries in the healthy foot were also faint, though stronger than in the affected foot. In this case it would be impossible to tell whether the faint arteries were pathologic or an individual peculiarity. However, the examination of the vasomotor balance decided the diagnosis. The foot became pale as soon as it was elevated, and bluish when it was lowered. This to my mind established the diagnosis.

236 West Seventieth Street.

Clinical Notes, Suggestions, and New Instruments

STAB WOUND THROUGH BOTH VENTRICLES OF THE HEART, WITH RECOVERY

E. M. FREESE, M.D., COLUMBUS, OHIO

History.—W. B., colored, was stabbed about 8 p. m., Sept. 2, 1920. He was brought to Grant Hospital at 8:30 and taken at once to the operating room, where I saw him a few minutes later. He was unconscious. Respirations were feeble and very shallow. No pulse was perceptible in the radial or the carotid artery. The pupils were widely dilated and the skin was in a cold perspiration. A spot of blood on the shirt over the heart indicated the site of the wound. Closer examination revealed a wound one-half inch long, in the fourth interspace 2 inches to the left of the sternum. Only a small amount of blood had escaped from the wound, not enough to account for the condition of the patient; it seemed likely that there was a severe internal hemorrhage. There was no spitting of blood or coughing of bloody mucus, but the area of cardiac dulness was much increased, so that the diagnosis of penetrating wound of the heart with hemorrhage into the pericardium seemed evident.

Operation.—The chest was painted with tincture of iodin and under light ether anesthesia, with the wound as the center, I made a U shaped incision with the base outward. The skin and pectoral muscles were laid back, the fourth and fifth costal cartilages cut through, and the corresponding ribs carefully separated from the pleura for about 3 inches, and then bitten with bone forceps and broken back out of the way without injury to the underlying structures. This gave a very satisfactory exposure of the field, and a wound of the pericardium was at once seen. A small stream of blood came from this wound, which was now enlarged upward and to the right. The reason for the lack of pulse, even in the carotid artery, was now perfectly apparent, as the pericardium was filled by a clot which produced almost a complete tamponade. When this clot was scooped out the heart began at once to beat violently, spurting a stream of blood on the anesthetist and over the field. The heart wound was instantly plugged with the tip of the index finger of the left hand and kept plugged, as well as possible, until a suture was passed and tied. This nearly checked the flow, but it was necessary to pass a second suture. Much blood was lost during these manipulations; but the heart still continued in fair shape, and the anesthetist reported that he could feel the pulse. It was now found, however, that a good deal of blood was welling up from behind the heart. Grasping the heart in the left hand, with the index finger hooked down over the apex, I raised the organ enough to expose a wound in the posterior wall nearly as large as the one which had been closed in the anterior. Owing, however, to the thickness of the left ventricle, it was not bleeding so rapidly. Two sutures were used to close this wound.

The heart had almost stopped beating, and no pulse could be felt by the anesthetist. My assistant started an intravenous injection of physiologic sodium chlorid solution. The pericardium was sponged out and closed with continuous iodin catgut, the ribs replaced, and the musculocutaneous flap

sutured in place without drainage. A little less than a quart of solution was put into the vein.

The patient was now taken to his room, the foot of the bed elevated, hot water bottles and blankets placed around him, a hypodermic injection of morphin and atropin given, and a rectal drip started. The morphin was repeated in an hour, as the patient was very restless. On his return to his room his pulse was 72 but very small. The slow pulse was regarded as being due to the handling of the heart. He arrived at his room at 9:15.

Postoperative Course.—The after-history of the case was satisfactory, and at no time was there any great cause for alarm. Bronchitis developed on the second day which was annoying on account of the painful cough; this was controlled with heroin. On the fourth day a loud friction murmur developed over the cardiac area because of a pericarditis. This lasted for two weeks, but there was never any sign of fluid sufficient to demand interference. The highest temperature, 102 F., was reached on the third day, with a pulse of 150; it was during this time that the bronchitis was most severe. The temperature rose to 100 every afternoon until the eighteenth day, when the patient was allowed to be taken out in the wheel chair; from that time it never rose above normal.

October 5, he was discharged from the hospital. The wound had long since healed perfectly. Physical signs did not show anything wrong. Roentgen-ray examination disclosed only some thickening in the pleura, with perhaps a little enlargement of the heart shadow. Blood examination was negative.

INTRA-ABDOMINAL PREGNANCY

REPORT OF CASE

THOMAS L. SULLIVAN, M.D., INDIANAPOLIS

History.—Mrs. E. A., aged 25, born in Indiana of French and German descent, was admitted to the obstetric service of the City Hospital, Aug. 10, 1920, because of a severe pain in the abdomen. Although of slender build and not very robust, her health had always been moderately good. She had begun to menstruate when 14 years old; and, until her present pregnancy, menstruation had always been regular and normal. She had never suffered from leukorrhea nor had a miscarriage. She was married, Aug. 28, 1919, and on Nov. 8, 1919, menstruated for the last time. Since then there had been a progressive enlargement of the abdomen, with development of milk in the breasts, fetal movements, etc.

The patient says that during the latter months of pregnancy the baby moved about constantly and that she herself, through the abdominal wall, could easily palpate different parts of the fetus. During the early months of pregnancy she complained of morning sickness and severe constipation, and had suffered from an occasional severe pain in the right side of her abdomen but thought that this pain was due to indigestion. August 10, she had a severe pain in the left side of the abdomen and had entered the hospital. This pain quickly subsided when she was put to bed. At 8:30 p. m., September 5, the patient was seized with an acute pain in the left lower abdomen and vomited greenish fluid. Shortly afterward an attempt was made to perform an external version, as the diagnosis of a transverse presentation had been made previously, and this diagnosis had apparently been substantiated by the roentgen ray. She was given codein sulphate, one-half grain hypodermically, and shortly afterward the pain entirely ceased. As labor had apparently begun and then stopped, and since no appreciable dilatation had occurred, the presentation was thought to be transverse; and as the patient was a primipara, it was decided that a cesarean section was indicated.

Operation and Result.—The operation was started at 11 p. m. with a midline incision above the umbilicus. When the peritoneum was opened, a thick, greenish fluid, slightly tinged with blood, welled up into the wound. The intestine was pushed aside, and a greenish, wormlike body was seen which, on being palpated, gave a distinct arterial throb. It was recognized as the cord. The baby was then seen lying a trifle deeper in the abdomen. He was lifted out, and the cord was clamped and cut. Blood gushed up rapidly after the baby had been delivered. I reached down in the midline with the expectation of grasping the uterus, as I then thought the case was one of ruptured uterus; but the uterus was not there. On running my hand down into the pelvis, I could feel a small, normal uterus.

We followed the cord and found the placenta adherent over the right tube and ovary, the posterior surface of the right broad ligament, and the right horn of the uterus. My assistant partially controlled the hemorrhage by grasping portions of the amniotic sac and placenta and twisting them as one might a towel, while I put several clamps on the broad ligament and cut away the placenta, including the right tube and ovary. In addition to the arteries of the right broad ligament there was a large vessel attached to the placenta which apparently came from the left broad ligament. There was also bleeding from two small vessels in the mesentery which had become adherent to the amniotic sac and were probably torn when it was moved.

Several cigaret drains were used in closing the abdomen, as I feared that portions of the amniotic sac remained and because of the great amount of blood and meconium which had been spilled over the peritoneum. Although the latter is said to be sterile, we felt it safer to drain thoroughly. A blood transfusion, which proved of great benefit, was given shortly after the operation. The cigaret drains were removed on the fifth day, and the patient went on to an uneventful recovery.

The baby weighed about 8 pounds and was well developed in every way except for a malformation of one side of the skull. He cried lustily for a short time, but died about an hour after birth.

COMMENT

A review of the literature of intra-abdominal pregnancy shows that most of the cases were diagnosed from the ease with which the fetal parts could be palpated through the abdomen, the loudness of the fetal heart sounds, and the fact that on vaginal examination a mass or parts of the baby could be felt extraneous to the uterus. In nearly every case the patient complained of severe pain in the abdomen at various times during her pregnancy. The size of the uterus was not at all uniform, in some instances being large and in others very small. In the case reported here it was no larger than the average nonpregnant uterus. The placenta in most of the cases was attached to the broad ligament or to the intestine. In several instances the operator was afraid to remove it on account of its attachment, and resorted to sewing it as near to the abdominal wound as possible and then packing with gauze. In one case it sloughed out at the end of thirty-six days, and in another at the end of forty-one days. The death rate in these cases was 45 per cent., whereas in the cases in which it was entirely removed it was much less. No doubt, however, the latter operations were far easier to perform. Most of the babies were either poorly developed or born dead. A few cases have been reported in which the child was normal.

Willoughby Building.

Surgical Judgment and Its Relation to Treatment.—Good judgment depends on an intimate knowledge of disease in all its aspects, its causation, its development, the natural reaction to it, and the final results which accrue. The better this knowledge the better the judgment is likely to be. It involves the questions of diagnosis and prognosis, and on these the line of treatment to be advocated follows of necessity. If a choice were to be made between a surgeon of superior judgment and one who was only a good operator, the balance would be very markedly in favor of the former. In the absence of good judgment, therefore, with its entailed good diagnosis and prognosis, good treatment cannot be systematically carried out. Good diagnosis carries with it a clear knowledge of the pathologic process present and the various means of treatment available, whereas good prognosis, with a perfect understanding of the eventualities, leads to the selection of the best line of treatment for the particular case in question.—C. F. M. Saint, *Brit. M. J.*, Oct. 30, 1920.

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SATURDAY, FEBRUARY 19, 1921

TYPHUS IN UNITED STATES

On February 1, the *Presidente Wilson* arrived at the port of New York, fifteen days out from Trieste, with three cases in the sick bay which the quarantine officer diagnosed as bronchopneumonia but which, later on, were proved to be typhus. The physician was experienced in the detection of typhus, but the cases presented no eruption and the mistake was therefore by no means inexcusable. The patients were sent to the hospital for immigrants and the correct diagnosis later became apparent. Fortunately the error was discovered before the other passengers in the steerage had been released, and the vessel and immigrants were remanded to quarantine, where appropriate measures were applied to prevent the spread of the infection. On February 10 an Italian liner arrived with twenty well-developed cases of the disease, and with the report that three passengers had died of typhus while *en route*. At that time a total of thirty-four cases had arrived from Italy.

The metropolitan press was promptly filled with stories of the typhus menace from Europe, of the alleged inefficiency of the quarantine safeguards, and so hysterical was the agitation that request was made for the suspension of travel from Europe—a backward step of one hundred years—utterly disregarding the fact that all factors involved in the spread of typhus are well known and that rational preventive measures can be applied without any material interference with commerce. As a first step in prevention of the disease, it is reported, incoming steamers are to be held in quarantine so that a minimum of twelve days will elapse from the time of leaving a foreign port until immigrants are permitted to disembark in this country.

From the popular alarm one would have supposed that the appearance of typhus at the port of New York was as a bolt from a clear sky. As a matter of fact, public health officials, even before the ending of the war, anticipated that with the resumption of trans-Atlantic travel and a tremendous immigration from typhus infected areas of Central Europe, the exclusion of typhus, plague and cholera would constitute a serious strain on our home quarantine system. Officers of the Public Health Service were, therefore, assigned to the consulates at chief European ports, and steamship companies were urged to provide suitable disinfecting plants at ports of embarkation. While the application of preventive measures on the other side during the last year have been far from perfect, the fact remains that several hundred thousands of immigrants have come from typhus areas, on hundreds of ships, and prior to February 1 typhus appeared on only six ships, and was detected on arrival at the United States and effectively treated.

The system of quarantine protection developed consists of a double line of defense: medical officers at foreign ports to supervise the application of preventive measures that are specifically provided for in the United States quarantine regulations, and, secondly, the facilities of the United States quarantine stations. If infection should evade the first barrier, the ship would still have to undergo inspection at her American port of arrival.

While not generally known, typhus prevailed in Mexico from 1916 to 1918 quite as extensively as in Europe, and its extension in epidemic form to the United States was prevented, despite the handicap incident to a long stretch of unprotected border which afforded opportunity for clandestine entry of travelers.

However, the New York Quarantine Station is still under state control and has not the amount of equipment or accommodation which should be provided for a port of the size of New York. Authorization and funds have been provided for the transfer of the station to the control of the federal government, and as soon as certain legal technicalities incident to the searching of the title have been completed, transfer undoubtedly will be consummated.

It is well to remind ourselves that typhus fever of a mild type has been endemic in New York City for a number of years. About 1910 Dr. Nathan Brill recorded a series of somewhat less than two hundred cases which he had observed in the previous ten years. For the most part they were of isolated occurrence and indicated that the conditions in New York City were not conducive to any serious spread of the disease. Goldberger and Anderson, in 1911, demonstrated by laboratory tests that the so-called "Brill's disease" was identical with old world typhus, and that the clinical manifestations were very similar but much milder in type. From 1910 to date these sporadic cases of Brill's disease, or mild typhus, continue to occur. Typhus fever is essentially a "poverty and filth" disease, and is transmitted from person to person by the body louse. From a consideration of its epidemiologic features, authorities are convinced that it is transmitted in no other way. It may be readily deduced from this fact that danger of infection exists only when a patient with typhus is infested with lice which carry the infection to his associates. With this knowledge it is reasonable to believe that there is little

if any danger of an epidemic appearing throughout this country. It is quite possible, however, that the slums of great cities, especially those with ports of entry for immigrants, may suffer with local outbreaks, and these can be easily controlled. Certainly there is no cause for a typhus phobia or for hysteria.

THE DANGER OF BEING TOO FAT

The secondary increment of body weight which is so commonly observed, particularly among the well-to-do classes, toward middle life is often looked on as a natural or physiologic gain which is to be expected after the age of 40. As a rule it causes little concern to those who are thus adding to their size, unless the gains are of sufficient magnitude to produce discomfort in certain types of activity or, more frequently, to occasion disfigurement from the standpoint of prevailing views on the human physique. Nevertheless, the life insurance companies have long insisted, on the basis of the elaborate statistical data which they have collected, that overweight is a physiologic liability rather than an asset. Actuarial experience shows that an increase in weight as age advances is not a sign of ideal conditions for health and efficiency. It is, in fact, deduced that the admitted handicap of gain in weight with advancing years should be combated. We should endeavor, a recent writer [1] states, to keep our weight at approximately the average weight for the age of 30, the period of full maturity, as experience shows that those so proportioned exhibit the most favorable mortality.

What are the burdens of obesity and why does it shorten life? Various answers, mostly indefinite in character, may be forthcoming in reply to this question. Tissue fat must be carried about like any other incubus. We are reminded that overweight puts a "strain on the heart and on the joints," [2] and that it "pushes up the diaphragm and cramps the lungs." A gaining adult who is already overweight may find his physical activities restrained and bodily exertion made labored. Accordingly, with an unchanged food intake the surplus of unused energy accumulates and a vicious cycle is presently established. The obese person inevitably limits his exercise; he grows heavier from the unused reserves, and his activity thereupon becomes even more restrained and limited. Overfeeding, obesity and lack of exercise interplay until "big" becomes "bigger."

In a recent issue of THE JOURNAL, Joslin [3] uttered a more specific incrimination against overweight as a menace to well being. In a well directed argument based on elaborate statistical material, he has reached the conclusion that diabetes is largely a penalty of obesity, and the greater the obesity, the more likely is nature to enforce it. There is a widespread tendency on the part of many clinicians to explain—perhaps one should say to excuse—obesity as the result of constitutional causes independent of mere overeating in ultimate analysis. Undoubtedly there are such instances, notably in connection with disorders of the endocrine organs or sex glands. Granted there is one person in a thousand, Joslin writes, who has some such inherent peculiarity of the metabolism which has led to obesity, there are 999 for whom being fat implies too much food or too little exercise or both combined.

It will not be denied that other predisposing factors or degenerative stigmas may play a part in the genesis of diabetes. Joslin's thesis helps, however, to explain its incidence in many recognized ways. Conjugal diabetes becomes an instance of simultaneous "exposure to good food"; the comparative frequency of diabetes among the well-to-do classes is readily understood in the light of their liberality of diet; diabetes as a sequel to infectious diseases may be an expression of the overfeeding of convalescence. These striking suggestions impose the duty of serious reflection on the medical profession. "You are too fat" may become a wise prophylactic utterance to a corpulent patient. Whereupon the physician again becomes confronted with the professional query: "What shall I do to become lean?"

1. Fisher, Irving, and Fisk, E. L.: How to Live, New York, 1919, p. 258.
2. Cabot, R. C.: A Layman's Handbook of Medicine, Boston, Houghton, Mifflin Company, 1916.
3. Joslin, E. P.: The Prevention of Diabetes Mellitus, J. A. M. A. 76: 79 (Jan. 8) 1921.

THE CAUSE OF INFLUENZA

Influenza has been well described as "a local infection of the upper respiratory tract, the general symptoms of such infection probably being referable to absorption of toxic substances." Our readers scarcely need to be reminded that the possible etiologic significance of the Pfeiffer micro-organism, *Bacillus influenzae*, is still under debate, and particularly its relation to the pathology of influenzal pneumonia. *B. influenzae* can usually be isolated from the secretions, but it is commonly found in company with other objectionable micro-organisms of the streptococcus and pneumococcus type. Furthermore, the catarrhal inflammatory changes in the upper respiratory tract do not display characteristics that enable one to differentiate them from such as occur with other types of infection in the same locality.

The outcome of attempts to produce typical influenza experimentally by procedures in some way resembling the presumable natural mode of infection has, on the whole, been unconvincing. Inoculations of the nasal and nasopharyngeal mucous membranes of healthy men with strains of *B. influenzae* have given negative results.[1] Pfeiffer was unable in his earlier investigations, more than a quarter of a century ago, to secure convincing evidence of the transmission of typical influenza to animals by inoculation with his bacillus,

1. Some Interesting Though Unsuccessful Attempts to Transmit Influenza Experimentally, Pub. Health Rep. 34: 33 (Jan. 10) 1919.

though he undoubtedly produced severe disorders in several instances. Later investigators have apparently been somewhat more successful in individual instances. Blake and Cecil [2] of the Army Medical School have now published the details of their elaborate research in which the production in normal monkeys of an acute respiratory disease by inoculation of the mucous membranes of the upper respiratory tract with *B. influenzae* and of bronchopneumonia by intratracheal injection seems to be an accomplished fact. The disease which they thus have called forth they believe is essentially identical with influenza in man with respect to its clinical course, symptoms and complications. The latter may include acute sinusitis, tracheobronchitis, hemorrhagic edema of the lungs and bronchiolitis as well as bronchopneumonia; so that, as the army investigators assert, the possible etiologic relationship of *B. influenzae* to all of these complications is clearly established.

Pneumonias have been shown in recent years to be producible by a variety of experimental procedures. Cecil and Blake [3] remind us of the now demonstrated characteristics that help to differentiate *Bacillus influenzae* pneumonia in man from the pneumonia excited by other bacteria and render it more readily recognizable by the pathologist. Numerous elaborate studies of the necropsy findings in influenzal pneumonia have been contributed from various parts of the world as the outcome of the unexpected opportunities afforded by the epidemics of the disease that have been widespread since the World War began. By reference to the records of MacCallum,[4] for example, the intense engorgement, hemorrhage and edema, the purulent bronchiolitis, the scattered foci of peribronchiolar consolidation, and the ensuing emphysema and bronchiectasis represent lesions of the lungs that have been emphasized as anatomic marks which would distinguish the infection from ordinary lobar and lobular pneumonia of pneumococcus and streptococcus origin. Acccording to Cecil and Blake,[3] experimental *Bacillus influenzae* infections of the upper respiratory tract in monkeys are frequently accompanied or followed by bronchiolitis, peribronchial infiltration, and bronchopneumonia with hemorrhage and edema in the early stage, and emphysema and bronchiectasis in the later stages. The close resemblance of the pathologic picture to what has been observed in uncomplicated influenzal pneumonia in man is thus apparent. Furthermore, in the experiments of Cecil and Blake the influenza bacillus could usually be recovered during the acute stage by culture, either pure or in association with other bacteria. Blake and Cecil [2] hesitate, however, to make any final pronouncement regarding the specific cause of human influenza. So long as it is impossible to determine beyond dispute whether the respiratory disease produced in monkeys with *Bacillus influenzae* is identical with influenza or merely similar to it, a discreet investigator will not insist that *B. influenzae* is the specific cause of influenza.

2. Blake, F. G., and Cecil, R. L.: Studies in Experimental Pneumonia, IX, Production in Monkeys of an Acute Respiratory Disease Resembling Influenza by Inoculation with Bacillus Influenzae, J. Exper. Med. **32**: 691 (Dec.) 1920; The Production of an Acute Respiratory Disease in Monkeys by Inoculation by Bacillus Influenzae, J. A. M. A. **74**: 170 (Jan. 17) 1920.

3. Cecil, R. L., and Blake, F. G.: Studies on Experimental Pneumonia, X, Pathology of Experimental Influenza and of Bacillus Influenzae Pneumonia in Monkeys, J. Exper. Med. **32**: 719 (Dec.) 1920.

4. MacCallum, W. G.: The Pathology of the Pneumonia in the United States Army Camps During the Winter of 1917-1918, Monograph 10, Rockefeller Institute for Medical Research, New York, 1919.

Current Comment

MEDICINAL USE OF WHISKY

Things are not always what they seem, says the poet. And in the world of practical affairs, general statements, even oft repeated and popularly accepted, do not always check up with the facts. Much has been made of the claim that the adoption of federal prohibition has seriously interfered with the use of whisky for medicinal purposes by physicians. The Anti-Saloon League of Delaware, in a recently issued circular, presents an interesting table on this question, based on information furnished by federal and state officials and statistics taken from the American Medical Directory. According to this tabulation, there were, at the time the federal prohibition amendment was adopted, twenty-four states —one half of the entire number—whose laws forbade either the writing or the filling of prescriptions for whisky or brandy. In these states, naturally, no permit under the federal law could be issued to physicians. In the remaining twenty-four states, in which there is no such law and in which, under the Volstead act, permits to prescribe whisky may be issued to physicians, there are, according to the American Medical Directory, 112,238 practicing physicians. Yet in these twenty-four states, only 33,379 physicians—29 per cent.—have taken out permits. Evidently, the remaining 71 per cent. do not regard whisky as of enough value in the practice of medicine to go to the trouble of taking out a permit.

BACTERIA AND THE SKIN IN INFANCY

There was a time not many years ago when microorganisms were believed to play a far more significant part in the etiology of those abnormal skin manifestations broadly designated as eczema than is accorded them today. At present, however, dietary factors and nutritive perturbations are held responsible for this group of cutaneous disturbances, which has been estimated to constitute as much as one third of the cases of skin disease. Precisely what the primary dietary mistake responsible for eczematous manifestations is has been debated. One may read of the alleged effects of too much, too little, or improper food in connection with it. Even the propriety of using the term eczema has been ardently discussed of late. Despite the current emphasis on the nutritional features, it would be unwise to forget the common presence of bacteria on the external surfaces of the body. Experience shows that despite dietary regulations which are often most helpful and sometimes effect a cure without other intervention, local treatment often seems called for. The

micro-organisms of the skin may become pronouncedly objectionable in certain types of eczema, and notably so when staphylococci appear in large numbers. What determines the appearance of the infectious agents? Observations of Loebenstein [1] in Berlin indicate that the bacterial content of the skin of the new-born is so low as to be negligible. Subsequently micro-organisms begin to inhabit the external surfaces of the body, but rarely in large numbers under normal conditions of health. In cases of eczematous tendency—the so-called "exsudative Diathese" of the continental writers—larger aggregations of bacteria are found locally in the affected areas. As the latter heal, the bacterial flora decreases promptly and may even become less prominent than during good health. From his investigations of the affected skin, Loebenstein believes that the bacterial invasion is not the primary factor, the causal agency in the eczemas described; on the contrary, it follows the deterioration of the cutaneous surfaces. The damaged skin becomes a favorable location for the development of bacteria; hence they thrive there secondarily, because the pabulum is favorable to them. The sequence of events includes first the unhealthy skin and then the invading micro-organisms. The consequent secondary phenomena, manifested as "moist eczema," pustulosis and impetiginous outbreaks, are thus readily understood.

1. Loebenstein, F.: Ueber die Bakterienbesiedlung der Haut beim gesunden und exsudativ-diathetischen Kind, Ztschr. f. Kinderh. **26**: 99 (Aug. 16) 1920.

"TRUTH IN ADVERTISING"

It has been well said that advertising is the life-blood of quackery. With equal truth it could be said that quackery may be the death blow of advertising. For years the manufacturers and advertisers of meritorious products made no organized attempt to curb the confidence-destroying mendacity of the nostrum advertiser. The majority of newspapers opened their advertising pages to any one that was willing to pay their advertising rates, and not a few publications—especially among the religious weeklies and monthlies, to their shame be it said—defended the blatant lies of the "patent medicine" swindler and even went so far as to claim that periodicals, as "common carriers," had no discretion in the matter and could not discriminate against advertisers. There were, of course, as is always the case, a few voices in the wilderness lifted against the evil of fraudulent nostrum and quack advertising, but they were few and far between; they were viewed as visionaries and their protests were largely unheeded. Yet there were here and there newspapers and magazines which preached "truth in advertising"—and practiced it. In time advertising became more specialized, and with this specialization and the study that went with it came the realization of the harm that was done the reputable advertising business by the rogues within its ranks. Then the various organizations of advertising men were brought into a more closely knit community of interest by a national organization; this later became international and is now known as the Associated Advertising Clubs of the World. The slogan of this organization is "Truth in Advertising" and, to further its objects, it created a "National Vigilance Committee" for the purpose of investigating such phases of advertising as seemed likely to injure the legitimate interests of the business. The National Vigilance Committee corresponds in many ways to the Propaganda department of THE JOURNAL of the American Medical Association. Its declared purpose is "To create maximum public confidence in advertising by making all advertising trustworthy." The committee does not, of course, confine its work to medical advertising, for its scope naturally must be as broad as the advertising field itself. As medical advertising, however, is, and has long been recognized as, the black sheep of the advertising family, it is natural that the National Vigilance Committee should have devoted a good deal of time to this particular class of advertising. Realizing that THE JOURNAL is in a position to furnish it with information regarding advertised medicinal products and the claims made for these products, the National Vigilance Committee has since its inception called on the Propaganda department for such specific data as it might have. Some of the local "Vigilance Committees" (known now as "Better Business Bureaus") of the component clubs that go to make up the organization also write to THE JOURNAL. After getting from such sources all the facts that are available, the National Vigilance Committee passes on this information to its members. In a few instances it has taken up, *de novo*, medical humbugs, as it has frauds in other lines of business, made its own investigations and then published its results in the form of special bulletins. Such an organization as the Associated Advertising Clubs of the World makes for optimism in those who are interested in seeing higher standards of business morality, with its corollary greater protection for the purchasing public. Such protection is sadly needed for those who go into the open market to purchase relief from suffering.

ASPECTS OF THE TREATMENT OF OBESITY

Although, in ultimate analysis, the problem of obesity may resolve itself into a question of nutritive bookkeeping, that is, of the relative balance between food intake and energy output, the clinician encounters difficulties from time to time in making this simple explanation fit all of the circumstances. This is particularly true when he stands face to face with a failure to reduce body weight despite what seem to be adequate reductions in the food allowance. For this reason it has often been asserted that there must be cases of fundamental disturbances of metabolism favoring obesity. Thus, instead of being ascribed to overeating, the pathogenesis of obesity might be assigned to an unusually low basal metabolism, a relatively small expenditure of energy for a given amount of muscular exercise, or to an unusually low production of heat after the ingestion of a given amount of food.[1] In addition to such an

1. Hewlett, A. W.: Pathological Physiology of Internal Diseases, New York, D. Appleton & Co., 1917, p. 216.

hypothesis the tendency to gain body weight as a consequence of perverted or omitted function of some of the endocrine organs, notably the sex glands and the hypophysis, is generally recognized. Before attributing some vague and metabolically mysterious cause to the failure to secure prompt losses of weight in many of the simple "reduction" treatments for obesity, wherein the food intake alone is carefully regulated and reduced without administration of drugs like the thyroid hormone, it will be well to examine more carefully into the tissue changes that may follow such treatment. The normal organism ordinarily responds promptly by fall of weight when the food allowance is reduced. The loss of body substance, estimated from the excreta, is likewise attended with the water which was associated or combined with the proteins, fats and other compounds in the tissues. Grafe[2] of Heidelberg has pointed out, however, that in the case of many obese persons the water which makes up a considerable portion of cells and fluids is not always so promptly disposed of by the body after its accompanying tissue solids are disposed of. Thus, a retention of water, even when the intake of fluid is somewhat restricted, may prevent the fall in weight from being conspicuous or significant. In other words, there are cases of obesity in which the tendency for the tissues to store water is greater than one finds in the usual experience with chronic undernourishment. In his metabolic studies on the obese, Grafe, like numerous other investigators before him, has not found indications of any inability of the organism to utilize and burn fat for its uses. The lesson of the increasing recognition of the failure of the body at times to give up water as readily as the solids with which it exists in biologic combination is one of patience in the management of antiobesity procedures. Carefully planned reduction in intake will almost always in the long run bring the desired result, unless perchance endocrine dysfunction stands in the way of success. The employment of organotherapy, effective in the hands of trained clinicians, should be regarded as a last rather than a first recourse.

NECROPSIES AND MEDICAL PROGRESS

It may be trite to emphasize again the importance of necropsies as an aid to the progress of medical science. However, as is pointed out in a recent report of a committee appointed by the Institute of Medicine of Chicago[3] to inquire into the question of necropsies in the hospitals of Chicago, the value of postmortem examinations to the advancement of medical science can hardly be overestimated. The necropsy confirms or disproves the clinical diagnosis, and gives additional information of value to the clinician in subsequent practice. The interest of the hospital staff in securing the consent to necropsy examinations may be taken as an index of the grade of clinical work done in the hospital. How much may be accomplished by earnest effort is revealed by Dr. Ashhurst in a letter appearing in this issue.[4] In his service he was able to obtain thirty postmortem examinations out of forty-three deaths, or 70 per cent. A contrast to these figures is revealed in those applying to the hospitals of Chicago. The reports vary from 48 per cent. of postmortem examinations in the Presbyterian Hospital to none at all in more than nine other institutions. The Cook County Hospital, with 2,000 beds, the largest institution in the city, was able to get postmortem examinations in only 8.9 per cent. of the deaths. As pointed out by the committee, it depends primarily on the hospital staffs to improve these records. It is believed that the deficiency is largely a matter of inertia and failure to realize the value of the postmortem examination rather than intentional neglect on the part of the staffs. Among the measures that will encourage interest are discussion in hospital staff meetings, the elimination of unnecessary delay in the signing of death certificates for undertakers, the establishment of adequate laboratory facilities with a pathologist in active attendance at the hospital, and closer cooperation between the pathologist and the medical and surgical staff. As Dr. Ashhurst says, his record could not have been secured without the active cooperation of the entire staff of the hospital. In making its report, the Institute of Medicine has taken up a fundamental problem for the benefit of medical science in Chicago. It is proposed to publish a report each year, recording progress or failure to live up to the requirements of scientific medical practice.

2. Grafe, E.: Zur Pathologie und Therapie der sog. "konstitutionellen" Fettsucht, Deutsch. Arch. f. klin. Med. **133**: 41 (July) 1920.
3. Proceedings of the Institute of Medicine of Chicago **3**: 150, 1921.
4. This issue, p. 540.

THE BIOGRAPHIC WRITE-UP

Most of us, whether we happen to be professional men or not, are easy marks for any form of exploitation which appeals to personal vanity. Among the most moth-eaten schemes is that entitled, "History of Important Men of Our Town," perchance a compilation of "Eminent Divines," "Men of Science," "Personalities of Bench and Bar," or "Physicians and Dentists of the Queen City." In such costly volumes appear ten photogravure reproductions of the vapid countenances of nonentities to one biography of a real leader. The greater the nonentity, the more glowing is his autobiography. The game, as we have said, is old; the glitter is but that of a bauble; but many men who should and do know better fall an easy prey. "A golden mind," said Shakespeare, "stoops not to shows of dross"

HEALTH ALMANACS

Louisiana and Rhode Island have issued health almanacs for 1921. That of Rhode Island is published as a number of its regular bulletin, thus securing second-class postal rates. The Louisiana almanac is a separate publication. In the preparation of these booklets the compilers have shown ingenuity, an excellent sense of humor, and a sense of public taste. Common sense and excellent medical advice are mixed carefully with humor, poetry and pictures, making a combination that will appeal to every citizen. The climatological and other almanac data make the pamphlets of practical value throughout the year. It is easy to give advice but hard to make people take it: when the pills are as well sugar-coated as in these almanacs, the patients "cry for them."

Association News

THE BOSTON SESSION

American Medical Golfing Association Tournament

Plans are being perfected for the annual American Medical Golfing Association Tournament—an entertainment feature at the convention. The tournament will be held on Monday, June 6, at the Commonwealth Country Club. The following constitute the local (Boston) committee in charge: Dr. Franklin Newell, chairman and Drs. Walter Lancaster and Harold Tobey, 416 Marlboro Street. The usual competitive events are planned, including the association championships for gross and for net scores and for the scientific section team matches. The surgeons now hold the section championship and trophies. The American Medical Golfing Association is open to all male Fellows of the American Medical Association in good standing, who have the degree of M.D. Full information may be obtained through the office of the Golfing Association secretary, Dr. Will Walter, 1414 Chicago Avenue, Evanston, Ill.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Hospital News.—A hospital will be opened at the old fair grounds, Thomasville, to take the place of the Clarke County Hospital.——Plans have been completed for the construction of the first unit of the Alabama Home for the Feebleminded, to be erected at Tuscaloosa, at an approximate cost of $175,000.

Extension of Health Work.—The International Health Board has appropriated $25,000 for 1921 for the organization of additional county health units and further extension of malaria control work in Alabama. The fund was made available at a conference between Dr. Samuel W. Welch, state health officer, and officials of the Interntional Health Board recently held in Baltimore.

ARKANSAS

Personal.—Dr. Aaron A. McKelvey has been reappointed district health officer of Fort Smith.—Dr. Percy A. Riddler has been elected chairman of the Fort Smith Board of Health.

Venereal Clinic Closed.—The City Clinic of Little Rock, maintained by the municipal authorities since the abandonment of the government clinic for the control of venereal diseases, has been discontinued. Patients will hereafter be referred to the Isaac Folsom Clinic.

CALIFORNIA

Personal.—Dr. Fred Tapley has been appointed health officer of Marysville, to succeed Dr. William J. Guinan, deceased.——Dr. Norman Bridge, Los Angeles, was operated on for acute appendicitis, February 14. Dr. Bridge at the last report was doing well. He is 77 years of age.

Municipal Tuberculosis Clinics.—The board of health of San Francisco has voted to assume the maintenance of five local tuberculosis clinics hitherto supported by the San Francisco Tuberculosis Association. The funds of the tuberculosis association do not suffice to maintain the clinics and to conduct the research work which it has planned.

Chiropractors Fined.—It is reported that C. T. Cleland and F. H. Johnson, chiropractors, recently found guilty in the superior court of Santa Ana of practicing medicine without licenses, have been set at liberty following the payment of fines of $100 each. Sentences of three months each were suspended on condition that the men would not resume practice for at least six months.

Medical Officers' Training School.—The Medical Department of the University of California has filed an application with the Surgeon-General of the Army for the establishment of an officers' reserve medical training school. An order will shortly be issued authorizing the establishment of the course and appointing a medical officer of the Army as instructor in military science and tactics.

COLORADO

Hospital Staff Reorganized.—According to press reports, the management of St. Joseph's Hospital, Denver, has decided that in order to further the interests of the hospital it is necessary that the present staff be dissolved and has so notified the staff. At the same time the hospital management has invited applications for positions on the staff about to be organized.

CONNECTICUT

Yale Alumni Day.—The eighth annual alumni university day will be observed at Yale University, February 22. The day has been set aside to give the alumni an opportunity of inspecting the university activities under normal working conditions. Prof. Lafayette B. Mendel will deliver an address on the functions of the graduate and professional schools as a part of the university development in the training of students for research work, and Dr. Milton C. Winternitz will speak on the training of medical students. For the benefit of visiting physicians the medical school has arranged a series of clinics, representing medical, surgical, gynecologic and obstetric cases, to be held at New Haven Hospital, from 12 m. to 1 p. m. A clinical pathologic conference will be held from 2 to 3 p. m. Graduates of the medical school and other Yale physicians will be entertained at luncheon at the New Haven Hospital as guests of the school of medicine.

FLORIDA

Personal.—Dr. John G. Lester, Bartow, has been appointed county physician of Polk County.——Dr. Henry O. Snow has been named physician of Hillsborough County, to succeed Dr. Roscoe E. Glass.——Dr. Benjamin F. Hodsdon has resigned his membership on the Miami Board of Health.

Regulations for Midwives.—New regulations for the practice of midwifery, incorporated in an ordinance recently passed by Tampa city council, stipulate that those desiring to practice shall register with the registrar of vital statistics, and agree to comply with the rules of the city health officer; they shall report each birth within twenty-four hours, and attend a class of instruction held by the Tampa District Nurses' Association.

Recommendations of State Board of Health.—In his annual report as secretary of the state board of health, Dr. Ralph Greene has recommended the coordination of the work of all health organizations under the direction of the state board of health; establishment of a state hospital for the care of the indigent poor; putting control of medical licensure in the state board of education; formation of a state lunacy commission, and organization of full-time county health boards.

IDAHO

Tuberculosis Sanatorium.—The Idaho Tuberculosis Commission has chosen Payette as the point of location for the first state tuberculosis sanatorium.

ILLINOIS

Personal.—Dr. Samuel N. Clark, associate in the division of neurology and psychiatry of the University of Illinois Medical Department and psychiatrist to the Illinois State Psychopathic Institute, Chicago, has been appointed psychiatrist of the Norbury Sanatorium, Jacksonville.

Chicago

Personal.—Dr. Hiram J. Smith has tendered his resigation as superintendent of the Illinois Charitable Eye and Ear Infirmary.

Accused of Violating Liquor Restrictions.—It is reported that Dr. John W. Koehn was recently arrested by United States deputy marshals on a warrant charging that he had issued 1,700 prescriptions for whisky within four months. Of this number, it is claimed, 1,000 were written on ordinary office stationery as emergency prescriptions for general debility.

Health Insurance Discussion.—The *Bulletin* of the Chicago Medical Society announces a joint meeting of physicians, dentists and pharmacists for the purpose of discussing health insurance. Dr. John J. A. O'Reilly, Brooklyn, will speak

from the standpoint of the physicians; Dr. Don M. Gallie from the standpoint of the dentists, and Mr. S. C. Henry from the standpoint of the pharmacists.

INDIANA

Marion Academy of Medicine.—Formation of a Marion medical academy was decided on February 1, at a meeting of physicians and surgeons, most of whom are members of the Grant County Medical Society. Dr. Godlove G. Eckhart was named temporary chairman, and Dr. Edwin O. Harrold, secretary-treasurer. No limitations as to the residence of members will be made in the constitution.

Personal.—Dr. Edouard J. DeBois has resigned his position as city bacteriologist of Indianapolis after fifteen years' service. Dr. William V. Boyle has been named as his successor. ——Dr. C. F. Morris has been appointed city chemist of Anderson, following the recommendation of the Madison County Medical Society which was consulted in the matter of the appointment. ——Dr. David E. Johnston has been appointed physician in chief of the Milan Sanitarium.

KENTUCKY

Personal.—Dr. Robert L. Woodard, Hopkinsville, has been appointed health officer of Christian County.

Academy of Medicine Organized.—Physicians and surgeons of Fulton have organized the Fulton Academy of Medicine, and elected Dr. John M. Alexander, president, and Dr. Henry T. Alexander, secretary.

MARYLAND

Special Lecture.—Dr. Richard P. Strong, professor of tropical medicine of Harvard University Medical School, delivered a lecture on the "Economic Loss from Disease Due to the War," February 7, at the School of Hygiene and Public Health of Johns Hopkins University.

Founders' Day at Johns Hopkins University.—The forty-fifth anniversary of the founding of Johns Hopkins University will be observed by public exercises, to be held in the Lyric Theater, February 22. Dr. Livingston Farrand, De Lamar lecturer at the Johns Hopkins School of Hygiene, will deliver the principal address.

Epidemic Encephalitis in Baltimore.—A report of the Baltimore City Health Department discloses that there have been nine cases of lethargic encephalitis in Baltimore since January 1. Five were reported during February and four in January. None of the cases proved fatal and, so far as the department's records indicate, all the patients have recovered or are convalescent.

MICHIGAN

Dean Vaughan Resigns.—Dr. Victor C. Vaughan, dean of the University of Michigan Medical School for the last thirty years, has tendered his resignation to take effect at the end of the scholastic year. Dr. Vaughan has been connected with the medical faculty for forty-five years.

Nutrition Clinic.—A clinic for children suffering from malnutrition has been opened at the Stocking School, Grand Rapids, as the result of the findings disclosed in the uncompleted survey of city schoolchildren. Out of 7,080 children examined, 1,064 were undernourished. Dr. Eugene N. Nesbitt will have charge of the clinic.

Coughing and Sneezing a Misdemeanor.—An ordinance recently passed by the city council of Detroit defines the uncovered sneeze or cough at a public gathering as a misdemeanor, punishable by a fine of $100. The cooperation of owners of theaters and other public places has been requested that the ordinance may be enforced.

MINNESOTA

Psychopathic Hospital Recommended. — The Hennepin County Public Health Service, composed of members of eight volunteer health organizations of Minneapolis, has recommended to the legislature the establishment of a psychopathic hospital at the university and a change in the methods of commitment of the insane and inebriates to asylums.

School Health Survey.—A survey of the activities in school hygiene in Minneapolis will be conducted by Dr. Francis E. Harrington, under direction of the U. S. Public Health Service, for the purpose of determining what methods should be inaugurated to derive the greatest benefit from the work. The annual health appropriation of the city totals approximately $1.16 for each schoolchild.

MISSISSIPPI

Physician Sentenced.—It is reported that the supreme court in a decision handed down January 31 upheld the conviction of Dr. Fletcher E. Lee, Petal, on a charge of performing a criminal operation and imposed a prison sentence of twenty years.

Permanent Clinic Established.—A nonsectarian clinic, known as St. Joseph's Clinic, was formally opened in Bay St. Louis, January 31. The clinic is under the management of the physicians of the city, who will render their services without charge to the indigent sick.

MISSOURI

Personal.—Dr. Eli K. Marshall, professor of pharmacology of Washington University, St. Louis, has been elected professor of physiology of Johns Hopkins Medical School, the appointment to take effect July 1.

Mental Hygiene Society Organized.—The Missouri Society for Mental Hygiene was organized in St. Louis, January 13, with the following officers: president, Dr. Malcolm A. Bliss; secretary, Dr. James F. McFadden, and treasurer, Dr. J. E. Wallace Wallin.

Hospital to Hold Clinics.—The General Hospital of Kansas City has inaugurated a series of medical and surgical clinics, to be held weekly in the hospital amphitheater by staff physicians. Members of the medical profession in Missouri and throughout the Southwest are invited to attend the clinics, which will be conducted every Wednesday from 8 to 12 a. m.

Social Service for Tuberculous.—The Tuberculosis Society of St. Louis, through its social service committee, recently called a conference of representatives from welfare agencies included in the Central Council of Social Agencies, for the purpose of standardizing the methods of social service in dealing with the tuberculous. The conference dealt with the medical, social, economic and legal phases of the subject. Dr. George B. Mangold, dean of the Missouri School of Social Economy, is chairman of the committee.

NEBRASKA

Personal.—Dr. George E. Pennington, Broken Bow, has been appointed health officer of Custer County.

State Health Director Proposed.—A bill has been introduced in the senate at the request of the children's code commission creating the position of state health director under the department of public instruction. The director would be charged with the medical and sanitary supervision of the rural schools at the expense of the school districts.

NEW JERSEY

Personal.—Dr. Leroy A. Wilkes, formerly director of child hygiene in Bridgeport, Conn., has been appointed medical director of Trenton Public Schools.

School Nutrition Study.—The Trenton branch of the American Red Cross has donated $7,000 for a study of malnutrition in the public schools. In the course of a recent survey it was disclosed that 22 per cent. of the schoolchildren were below the average weight for their ages and height. The demonstration is intended to establish definite data on which to base continuation of the work as part of the regular school program.

NEW YORK

Personal.—Drs. William J. Sullivan and Joseph Rieger have been reappointed members of the Dunkirk Board of Health.

Municipal Milk Plant for Jamestown.—The citizens of Jamestown have authorized a bond issue of $150,000 for the construction and equipment of a municipal milk pasteurizing and distributing plant.

Government Leases New State Hospital.—Under the provisions of the bill recently passed by Congress authorizing the appropriation of $18,000,000 for the construction and provision of hospitals for disabled veterans of the World War, the federal government will lease the new $3,000,000 State Hospital to be built at Creedmoor, L. I. The annual rental will be $300,000.

Public Health Exhibition.—In connection with the annual meeting of the Medical Society of the State of New York, to be held in Brooklyn, May 2-5, a public health exhibition will be held in the Twenty-Third Street Armory. The committee in charge of the exhibit plans to secure the cooperation of the dentists and pharmacists in giving a series of educa-

tional exhibits and addresses to which the public will be admitted, and covering all aspects of public health.

Tonsil and Adenoid Clinics.—Tonsil and adenoid clinics for the children in Rochester have been established at the Convention Hall Annex and at the General, St. Mary's, Homeopathic and Hahnemann hospitals. The clinics are an outgrowth of the tonsil and adenoid clinic held by the Eastman Dental Dispensary during the summer of 1920, and are financed by the Community Chest. Approximately 1,600 children of school and preschool age, who were referred for attention during a tonsil and adenoid survey of the schools, have been treated in the first three weeks of the clinics' activities.

New York City

Presentation of Portrait.—A portrait of Dr. Samuel W. Lambert, dean emeritus of the College of Physicians and Surgeons, Columbia University, was presented to the college, January 28. The presentation speech was made by Dr. George S. Huntington, professor of anatomy.

Harvey Lecture.—The seventh of the current series of Harvey Society Lectures will be delivered at the New York Academy of Medicine, February 26, by Dr. A. N. Richards, professor of pharmacology in the University of Pennsylvania, on the subject of "Kidney Function."

New Brooklyn Hospital.—The Brownsville and East New York Hospital, Brooklyn, will open its doors for the reception of patients about March 1. The medical staff of the hospital has inaugurated a series of monthly lectures the first of which was delivered at the Kings County Medical Society, January 29, by Prof. Elmer V. McCollum of Johns Hopkins University on the subject of "Nutrition."

County Ward Closed to Physicians.—The observation ward of Kings County Hospital has been closed to private physicians by order of the welfare commissioner, Bird S. Coler. The Medical Jurisprudence Society of New York, at a recent meeting, unanimously adopted resolutions opposing the commissioner's ruling on the ground that it is an unnecessary interference with the private practice of medicine.

NORTH CAROLINA

Personal.—Dr. John V. Hunter has been elected physician and quarantine officer of Randolph County.——Dr. John C. Twitty has been reelected county physician and quarantine officer of Rutherford County.——Dr. Grover Wilkes has been appointed physician of Jackson County.——Dr. S. L. Russell has been appointed health officer of Yadkin County.——Dr. R. S. Bailey has been appointed health officer of Vance County.

OHIO

Personal.—Dr. William D. Inglis has been appointed a member of the board of health of Columbus to succeed Dr. Pinckney D. Shriner.

Harrison Law Violation.—It is reported that Dr. E. L. Lowthian, Yorkville, recently pleaded guilty to two charges of violation of the Harrison Narcotic Law and was fined $250 on each charge.

Group Clinic Organized.—Under the leadership of Dr. Joseph L. DeCourcy, a clinic, in which the several branches of medicine and surgery are to be represented, has been organized at Cincinnati.

Public Cooperation Against Quacks.—The Academy of Medicine of Cleveland, through its executive secretary, Mr. Guy M. Wells, has issued an appeal to the public asking that all unsatisfactory dealings with quacks be reported to the academy.

Water Supply Condemned.—The state board of health has issued an order requiring that the town of Hillsboro secure a new and uncontaminated water supply within one year. The order was issued following the development of a number of cases of typhoid fever which were traced directly to the town's water supply.

OREGON

Officers of Board of Health.—Dr. Willis B. Morse, Salem, has been elected president of the newly constituted state board of health, and Dr. Charles J. Smith, Portland, has been elected vice president.

State Aid to Children's Institutions.—According to the terms of a bill introduced in the state senate, on recommendation of the state child welfare commission, authority will be given for the extension of state aid to any institution caring for children. Another bill extends the jurisdiction of the commission to all children's institutions and provides that no building for the care of children be erected without approval of the commission by any agency coming within the provisions of the act.

PENNSYLVANIA

Hospital Drive Ended.—Final reports submitted to the board of managers of the Harriman Hospital at the conclusion of the drive for a $15,000 maintenance fund indicate that the total cash contributions amounted $10,107.82.

Instruction of Health Officials.—Dr. William C. Miller, chief of the division of public health education, state department of health, has initiated a correspondence course of instruction for health officials in every county throughout the state. The curriculum will consist of lessons in hygiene and the practical application of the state health laws. The course, which is required of all health officials, is open to nurses, welfare workers and workers in allied fields.

Personal.—Dr. J. Q. Thomas, Conshohocken, has been appointed a member of the board of trustees of Norristown State Hospital.——Dr. Thomas S. Blair, Harrisburg, chief of the bureau of drug control of the state health department, has been appointed a member of the Committee on Narcotic Drugs of the American Medical Association.——Dr. Henry Wilson, Somerset, has been elected superintendent of the Somerset County Home and Hospital, to succeed Dr. A. M. Uphouse, resigned.——Dr. Henry Stewart, Gettysburg, has been elected physician to the Adams County Almshouse and Insane Asylum.

Health Department Appointments.—The following appointments were recently announced by the state department of health: Dr. Elmer Bausch, Allentown, and Dr. Lucius M. Elsinger, Scranton, have been appointed assistants in the state clinics in their respective cities; Dr. Daniel E. Hottenstein, Millersburg, medical inspector of Dauphin County; Dr. Harry M. Hartman, chief of the child welfare clinic at Gettysburg; Dr. Arthur B. Hamilton, assistant in the tuberculosis clinic at Bethlehem; Dr. William H. Banks, chief of the tuberculosis clinic at Mifflintown; Dr. Harry S. Falk, chief of the child health station at Emporium; Dr. Joseph R. Beckley, Lebanon, medical inspector of schools for the Lebanon independent district; Dr. Clayton C. Flatt, Corydon, for Kinzua and Corydon Townships, Warren County, and Dr. George F. Drum, Mifflinville, for Briar Creek Township, Columbia County.

Philadelphia

Personal.—Dr. Samuel Bolton was slightly injured when the automobile in which he was riding was struck by a street car.

Hatfield Lecture.—The third Nathan Lewis Hatfield Lecture was delivered at the College of Physicians of Philadelphia, February 18, by Dr. William R. Nicholson on "An Anachronism of the Twentieth Century—The Midwife."

Hospital Changes.—Dr. Charles Lincoln Furbush, director of public health, presented detailed plans for the expenditure of $1,030,000 in modernizing the Philadelphia General Hospital, the Contagious Diseases Hospital and the Hospital for the Insane, Byberry, at a recent meeting of the council's health committee. In connection with the contemplated improvements for the care of the insane at Byberry, the expenditure of $660,000 at that place alone is planned. The same will provide also for an infirmary for male and female insane patients, an administration building, and colony farm buildings. The director has apportioned $150,000 of the sum to the Contagious Diseases Hospital for the erection of an addition to the bacteriologic building and for equipment. For the Philadelphia General Hospital $320,000 has been requested for the construction of obstetric and surgical buildings and a new clinic for completion of the hospital library and museum and for the construction of a research laboratory.

SOUTH DAKOTA

Marriage Law Proposed.—A bill, based on the Wisconsin marriage law, has been introduced in the state legislature, requiring that every applicant for a marriage license must file with the application a certificate from a registered physician certifying to the applicant's unimpaired health and physical and mental fitness as determined by a personal examination and giving an outline of the applicant's family history.

TENNESSEE

Hospital Addition Completed.—The annex to the Kings Daughters' Hospital, Columbia, erected at a cost of $15,000, is ready for the reception of patients.

New Milk Regulations Proposed.—The Hamilton County Medical Society and Chattanooga Academy of Medicine adopted resolutions opposing a bill recently introduced in the state legislature which requires that all milk on sale in cities of the state shall either be pasteurized or certified.

UTAH

Personal.—Dr. John F. Flynn has been appointed health officer of Bingham.

Popular Health Campaign.—Dr. Heber J. Sears, chief of the department of hygiene and preventive medicine in the University of Utah, conducted a campaign on public health throughout the state during the month of January. Dr. Sears delivered from one to three lectures daily in various towns on his itinerary.

WISCONSIN

Illegal Practitioner Sentenced.—It is reported that John Till, plaster healer at Barron, has again been sentenced to one year in the county jail for practicing medicine without a license.

Hospital Construction Work Completed.—An extensive addition to Mercy Hospital at Janesville, designed to relieve congested conditions in various departments of the institution, is practically complete.

Honor to Dr. Daniel Hopkinson.—A testimonial dinner will be tendered to Dr. and Mrs. Daniel Hopkinson at the Milwaukee Athletic Club, Thursday evening, February 24, at 6 o'clock. At this function members of the county and state medical associations will endeavor to express the high regard in which the guests of honor are held.

CANADA

Personal.—Dr. Mary Logan Cowan, a member of the Department of Pathology, University of Toronto, has been awarded the Beit Memorial Scholarship for research in medicine. She will shortly take up work in the Lister Institute of Preventive Medicine.

Society News.—The Canadian Association of Massage and Remedial Gymnastics recently held its first annual meeting in the Royal Victoria Hospital, Montreal, which was attended by delegates from many of the principal centers of Canada. Dr. F. W. Harvey, Montreal, is president and Dr. Clarence L. Starr, Toronto, vice president.——At the annual meeting of the Academy of Medicine of Edmonton, Alta., the following officers were elected: president, Dr. T. H. Prust; treasurer, Dr. R. F. Nicholls, and secretary, Dr. H. H. Hepburn.——The Calgary Medical Society has requested the Alberta Medical Association to appoint a committee to meet with a similar body of the Law Society for the discussion of the proposed revision of the statutes relating to insanity.

GENERAL

Psychology Journal Transferred.—The *American Journal of Psychology*, established by Dr. G. Stanley Hall in 1887, and since edited by him, has been acquired by members of the department of psychology of Cornell University, and will hereafter be edited by Prof. E. B. Titchener.

Society Election.—At the annual meeting of the New England Women's Medical Society, January 20, the following officers were elected for the ensuing year: president, Dr. Florence Duckering; vice president, Dr. Maud Carvill; secretary, Dr. Alice H. Bigelow, and treasurer, Dr. Margaret Kleinert, all of Boston.

Visit of French Scientist.—Mme Marie Curie, the discoverer of radium, will visit the United States in May for an extended tour, as the guest of Mrs. William Brown Meloney, editor of the *Delineator*. A reception committee of prominent physicians who are engaged especially in radium work has been appointed under the chairmanship of Dr. Francis C. Wood, New York.

Reorganization of the Executive Departments.—The Joint Congressional Committee on Reorganization of the Governmental Departments, provided for in the Smoot-Reavis Joint Resolution, consists of Reed Smoot, Utah, James W. Wadsworth, New York, and Pat Harrison, Mississippi, from the Senate, and C. F. Reavis, Nebraska, H. T. Temple, Pennsylvania, and R. W. Moore, Virginia, from the House. Senator Smoot, chairman of the joint committee, has announced that this committee will meet in night sessions three times each week in its work of making a survey of the administrative services of the government. He plans to organize this committee before the expiration of the present session of Congress and to start the work of the committee during the interim between the present and the extra session of Congress. The protracted discussion on the reorganization of federal health activities, as well as Senator Smoot's well known views on the Public Health Service make it highly probable that the health work of the national government will be among the first subjects taken up.

Typhus Fever Among Immigrants.—Thirty-five cases of typhus fever have developed among passengers taken from the steamers *Presidente Wilson* and *San Giusto* to Hoffman's Island, New York Harbor, and another case was discovered in a young man who had frequented the steamship docks in Brooklyn. Three of the patients had succumbed to the disease up to February 15, and three other deaths during the voyage of the *San Giusto* were attributed to the same cause. Special precautions have been adopted by the U. S. Public Health Service to prevent further importation of the disease, and a twelve day quarantine of immigrants from certain foreign points will be maintained at all ports where quarantine enforcement is under federal control. Special precautions will be observed in admitting passengers on vessels coming from Rotterdam, Antwerp, Havre, Cherbourg, Gothenburg, Danzig, Trieste and Naples. At a number of European ports officers of the U. S. Public Health Service are detailed to make careful medical inspections and to issue bills of health; such precautions have proved uniformly successful. The Army vermin exterminating plant at Hoboken has been put at the disposal of the health officers of the post of New York for disinsection of immigrants.

Gorgas Memorial Institute.—As a memorial to the late Gen. W. C. Gorgas and in recognition of his achievements in preventive medicine, Dr. Belisario Porras, president of the Republic of Panama, has proposed the foundation of an institute of tropical and preventive medicine in connection with the Santo Tomás Hospital at Panama. Pending the erection of a permanent building it is planned that the institute shall comprise a well organized laboratory for research in tropical diseases in the Santo Tomás Hospital. After the laboratory has been established it is contemplated to organize a school of tropical medicine. As it is the wish of President Porras that the institute be a contribution of the Republic of Panama to the memory of General Gorgas, the project will be financed by the Panamanian government. Although the work of the institute will be largely in the interests of the countries of Central and South America, it is hoped that its activities will give it an international scope and that it will have the active cooperation of leaders in tropical and preventive medicine. At a meeting held in Washington, January 31, a provisional board of directors for the United States was appointed, including Admiral William C. Braisted, M. C., U. S. Navy, chairman; Dr. Leo S. Rowe, director of the Pan-American Union; Surgeon-Generals Ireland, Stitt, and Cumming of the Army, Navy and Public Health Service, respectively; Hon. J. E. Lefevre, chargé d'affaires of the Republic of Panama, in Washington, and Hon. John Basset Moore, legal representative. A similar board will be named to represent the countries of Central and South America.

LATIN AMERICA

Leprosy Notifiable in Brazil.—The National Board of Health has made the notification of leprosy compulsory and also the report of the change of residence or the death of any one known or suspected to have leprosy.

Vital Statistics of Venezuela.—According to the last report of the Department of Public Health of Venezuela, the infectious diseases which caused most deaths during the year 1919 were influenza, 8,155; tuberculosis, 4,848; intestinal diseases, 4,670; dysentery, 4,275; typhoid fever, 1,566, and hookworm disease, 1,862.

Child Welfare Work in Rio de Janeiro.—The *Brazil-Medico* announces the creation of a new service in the municipal public health and charities system, a domiciliary *serviço de puericultura*. Its activity is to be limited to the suburbs, and is to include maternity cases as well as supervision of infants during the first few months of life. Four physicians have been assigned to the service, including Dr. P. Vasconcellos, Dr. P. Paes de Carvalho and Dr. P. da Cunha.

Argentine Materia Medica.—Under this heading the *Semana Médica* describes the organization of a scientific mission for the study of the native flora and materia medica of Argentina. The expedition will study the region of the Uruguay River and Misiones territory. The party includes Sr. J. F. Molfino, chief of the botanical section of the pharmacologic institute of the Buenos Aires Facultad de Medicina, and Sr. L. R. Parodi, chief of the botanical section of the Facultad de Agronomia.

Argentine Medical Congress.—The Asociación Médica Argentina, composed of six societies (societies for internal medicine, surgery, hygiene, radiology, medical deontology and biology) will hold its next annual meeting at Buenos Aires in October. The subject appointed for discussion in the general meeting is the treatment of fibromas, to be introduced by Dr. A. Lanari. The internists will discuss encysted pleurisy and ulcerative colitis, the surgeons, tumors of the pancreas and inherited syphilitic disease of the long bones.

Fellowship Offer to Chilean Physician.—The Chilean-American Association of New York has offered a one year fellowship in the New York Post-Graduate Medical School and Hospital to a Chilean physician to be designated by the secretary of education of Chile. A fund of $3,000 is available for this purpose, $1,000 of which will be devoted to traveling expenses and the remainder for teaching and maintenance. The secretary of education has requested the officials of the School of Medicine to recommend a physician for the fellowship.

Smallpox Prevalent in Haiti.—Wide dispersion of smallpox in Haiti, which began in mild epidemic form many weeks ago, has led to the issuance of an order closing all theaters and public places, and prohibiting dances and similar gatherings. Deaths are reported almost daily but are limited almost exclusively to the natives; few Caucasians have been affected. The present epidemic is the first of a serious nature since 1882, when it is estimated about 200,000 natives succumbed to smallpox. Medical officers of the United States government have been detailed to cooperate in the administration of measures of suppression.

FOREIGN

Smallpox Still Prevails in Spain. — Our last Spanish exchanges state that while the number of smallpox cases is decreasing in most parts of Spain, the epidemic is still increasing in Guipúzcoa, where the people refuse to be vaccinated.

The American Hospital at Paris.—The *Presse médicale* states that plans are under way to build a new pavilion for the American Hospital at Paris. This will increase its capacity from thirty to a hundred beds, but it requires $400,000. A committee is now at work to raise the necessary funds.

Cost of Medical Education in Australia.—The University of Sydney has announced an increase of approximately 50 per cent. in the fees payable by students. In the medical school the term fees will be increased from £132 to £216, and as it is anticipated that the fees for hospital practice will be raised proportionately, the total tuition fees of the medical student will be about £300.

Prize Topics.—A number of prizes are offered by the Académie de médecine of Paris for contributions on the ultimate outcome of wounds of the skull; transformation of epitheliomas into sarcomas; war traumatic epilepsies; abortive treatment of poliomyelitis; relations between the therapeutic properties and the chemical constitution of different agents; poisons of the saponin group, and hemorrhagic pancreatitis.

Jugoslavian University.—The *Policlinico* gives the list of members of the medical faculty of the University of Agram, the only one in the Serbo-Croato-Slovene state. Dr. Houdl is professor of pathology and bacteriology; Dr. Bubanovic of clinical medicine; Dr. Miculicic of pharmacology and experimental pathology, and Dr. Semikauska of physiology. During the first half of 1920 there were 874 medical students enrolled.

Prophylaxis of Venereal Disease.—The Netherlands Society to Prevent the Spread of Venereal Disease has founded a periodical entitled *Sexueele Hygiene*, to aid in promulgating its ideas and recording what is being accomplished at home and abroad to protect the individual, the family and the community against venereal disease. One of the six members of the editorial staff is Prof. T. M. van Leeuwen. The publisher is J. Ploegsma, Zeist, Holland.

France Confers Title of Professor Without Corresponding Chair.—The *Journal officiel* announces that hereafter all members of the teaching force of the universities, now known as *agrégés* or in charge of courses, are entitled to the title of professor when a demand for this, signed by two thirds of the voting force and of the Conseil supérieur de l'instruction publique is presented to the authorities in charge. The titular professors are not entitled to vote in the faculties or to election as dean or assessor, but otherwise their rights and privileges are the same as those of professors with regular chairs.

Paris Faculty's Course in Ophthalmology.—A graduate course in ophthalmology will be given at the ophthalmologic clinic of the Hotel Dieu under the auspices of the Paris Medical Faculty, beginning May 10 and continuing through the month of June. Prof. F. Lapersonne and Drs. Terrien, Guilleminot, Hautant, Velter, Prelai and Monburn will conduct the courses, which will include clinical examinations and practical surgical and laboratory work. A special certificate from the Paris Medical Faculty will be given on completion of the full course. The number of students will be limited to forty and the fees will total 150 francs. Physicians and students desiring to take the course should apply to the secretary of the Faculté de médecine de Paris.

Albert J. Chalmers Memorial Library.—The late Dr. A. J. Chalmers made a valuable collection of medical works, mainly on tropical diseases, including a number of incunabula. This collection, with the exception of a small number of books which were donated to the Royal College of Physicians, has been presented by his widow to the Royal Society of Medicine as a memorial to Dr. Chalmers. Mrs. Chalmers has added a gift of £500, with which the society will furnish a room in its building and equip it with shelves. The room will hereafter be known as the Chalmers Memorial Library. The special collection of books will be utilized for the promotion of the work of the new section of tropical diseases, recently organized by the society, with Sir Leonard Rogers as president.

Campaign Against Tuberculosis in Children in France.—The work of the Oeuvre Grancher was described by its secretary in THE JOURNAL, July 6, 1918, p. 1. The present status of the work is given in the *Presse médicale*, Jan. 22, 1921, p. 105. The mortality of the children removed from tuberculous city families to healthy homes in the country has dropped to 0.1 per cent., but the expense of the work has increased from 2 francs per day before the war to 3 francs at the present time. All the money is spent on the children. Hitherto the Oeuvre Grancher has limited its work to children over 3 and under 15, but it has recently been decided to take infants, and an infant crèche is now being organized to extend its scope to the youngest child. One of the advantages of the work is that the children adopted into country homes grow up usually to be farmers or marry farmers. The eighteenth annual meeting of this "Work for Preservation of Children against Tuberculosis," was held recently at Paris with the chief of the public health service presiding. He urged that every province in France should organize a simjlar work, and that this system of giving out healthy children for adoption in the country to save them from threatening tuberculosis should be adopted as a link in the chain of world measures against tuberculosis.

Deaths in Other Countries

Sir Frederick Taylor, president of the Royal College of Physicians in 1915, author of a textbook on the "Practice of Medicine," the first edition of which was issued in 1890 and the eleventh in 1918; aged 73.——**Edmund Johnson Spitta,** Hove, Brighton, England; M.R.C.S., England, L.R.C.P., London, 1874; at one time vice president of the Royal Astronomical Society and Royal Microscopical Society.——Dr. **A. Albu,** privatdozent in internal medicine at the University of Berlin and author of numerous works on metabolism and gastro-intestinal diseases, aged 54.——**Dr. A. L. de Soldati,** chief of the public health and of the public instruction services of the province of Tucumán, Argentina, and at one time senator and a member of the national cabinet, aged 56.——Dr. **M. Pollosson,** an eminent surgeon and professor of operative medicine at the University of Lyons.——Dr. **Elie Bourquelot,** professor of pharmacy at the University of Paris, vice president of the Académie de médecine, author of numerous works on topics connected with pharmacy.——**Dr. M. Holl,** professor of anatomy at the University of Graz, aged 68.——**Dr. F. Unterberger,** privatdozent for gynecology at the University of Königsberg, aged 67.——Dr. **L. Guella,** president of the Medical Chamber of Trento.

Government Services

Increase in Hospital Appropriation

The Senate added $1,100,000 to the appropriations for the construction of hospitals for wounded and disabled soldiers during its debate on the Sundry Civil Bill. The hospital at Fort Bayard, N. M., was allowed $750,000; the Marine Hospital at Evansville, Ind., $100,000, and the Marine Hospital at Pittsburgh, $250,000.

Reserve Medical Officers

The Medical Department of the Army began this week to circularize all Class A medical schools with a view of inducing them to establish a Reserve Officers' Training Unit for the instruction of medical officers. An appeal is being made to every university and college to institute the military course now authorized by the Army Reorganization Act so that there will be a regular increase in the number of emergency medical officers each year.

Simplification of Army Records

Surgeon-General Ireland has inaugurated a campaign for the reduction of paper work in the Army Medical Department. During the World War medical officers sometimes found difficulty in attending the sick and wounded because of the necessity of making out the detailed daily and weekly reports prescribed by the regulations. As a result of the lessons learned then it has been decided to reduce the number of records to the limit of absolute necessity. The "sick and wounded" report has been greatly simplified, some reports have been eliminated altogether, and others are being curtailed and consolidated so that ultimately, it is hoped, medical officers will be relieved of all complicated paper work.

Interdepartmental Social Hygiene Board

The Senate voted to strike out an item of $40,000 for administration of the Interdepartmental Social Hygiene Board which had been inserted in the Sundry Civil Bill as an amendment by the Senate Appropriation Committee. The appropriation of $300,000 for the continuance of the venereal disease control work was transferred from the Interdepartmental Social Hygiene Board to the division of venereal diseases of the Public Health Service. If this action is approved by the conference committee the activities of the Interdepartmental Social Hygiene Board will cease after July 1 and all venereal disease control work of the federal government will be concentrated under the Public Health Service.

Hospitals and Officers of the Public Health Service

During the last several weeks the Public Health Service has taken over for use as government hospitals the Aberdeen Hotel at St. Paul, the Asbury Hospital at Minneapolis, Wesley Hospital at Kansas City, Mo., and Altamont Hotel at Newport, Ky. The patients under treatment, February 3, numbered 25,475, of whom 21,866 were beneficiaries of the War Risk Insurance Bureau. The facilities for the care of patients with tuberculosis and mental and nervous disorders of various kinds are not in keeping with the need. The Sundry Civil Bill, which appropriated $18,850,000 for hospital construction, has made adequate provision for the hospital requirements. The Public Health Service has been considerably expanded by reason of the additional duties devolving on it in the care and treatment of War Risk Insurance patients. Through operation of a statutory provision permitting the formation of a reserve corps most of the additional medical officers have been appointed. At the present time the service consists of a regular corps and a reserve corps. It was hoped that when additional funds for hospital construction were secured, Congress would also provide for a reorganization of the Public Health Service. This legislation, however, has been postponed since it could not be considered in the Sundry Civil Bill.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Jan. 21, 1921.

The Carotid Arteries and Hemorrhages of the Tonsils

At a recent meeting of the Société de chirurgie, Dr. Sebileau, hospital surgeon and agrégé professor of the University of Paris, gave a dramatic account of the death of a young girl from fulminant hemorrhage following tonsillectomy, performed by an expert surgeon. Aside from its dramatic features, this observation is instructive, for the case was taken to court, a judicial necropsy was held, and a large tear was discovered in the internal carotid artery. The surgeon against whom the charge was brought had performed more than 500 tonsillectomies without the slightest accident. In connection with this event, the *Gazette des hôpitaux* recalled the history of a case of the celebrated surgeon Péan. Péan had just removed two large tonsils with the Chassaignac tonsillectome from a young man of 30. All had gone well and the surgeon had left. Soon the brother of the patient came running after him, calling to him to return at once to the patient, who was bleeding profusely. Péan, without losing a second's time, applied, somewhat at random, four or five clamps, and hemorrhage was immediately arrested. He had arrived in the nick of time, for the patient was already pulseless. The copious hemorrhage led Péan to believe that the internal carotid artery was involved. The clamps were left in place for twenty-four hours, and the patient recovered. In view of these facts, laryngologists will do well to bear in mind that the internal carotid lies in the vicinity of the tonsil.

Advertising to the Public the Curability of Cancer

The minister of public health is using posters to call the attention of the general public to the curability of cancer and also to some of the symptoms little known to laymen. He also emphasizes more particularly the serious inconvenience that may result from the use of pseudotherapeutic methods recommended by empirics, not the least of which is that thus the moment when rational treatment might have still some chance of success is allowed to slip by.

War in Relation to Chemistry

Charles Moureu, professor in the Collège de France, has just published, under the title "Les leçons de la guerre" (Masson et Cie, publishers), an instructive book on chemistry in relation to the war. He points out the great importance of the problem of chemistry during the war, and emphasizes the necessity of assuring an adequate supply of expert chemists by improving the quality of instruction in chemistry. He also stresses the need of a more systematic organization of scientific research. In speaking of the future of science in general, Moureu points out that the whole nation ought to take part in the scientific movement, and he urges his fellow countrymen to draw inspiration from what has been accomplished in the United States, where the various organizations and scientific societies for the last fifty years have pursued an active and insistent propaganda that has borne fruit. Multimillionaires have contributed immense sums for the prosecution of research work, and—what is still more significant—many large corporations have established laboratories. Even charitable organizations have found time and money, along with their other work, to promote institutions of research. For example, the League for the Relief of Belgium, after having, during the war, provided relief for our allies, and having, with the signing of the armistice, a balance on hand of more than 100 million francs, devoted it to the creation of a fund for the advancement of laboratory

research. Moureu likewise refers to the resolution adopted by the American Federation of Labor at its congress held at Atlantic City in January, 1919, in which the Federation of Labor took the stand that it is of prime interest for the welfare of the nation to schedule a comprehensive program of scientific research.

The Seventh Centennial of the Montpellier Faculty of Medicine

The sixth centennial of the University of Montpellier was celebrated in 1890. The preparations to which reference was made in a news item (THE JOURNAL, Nov. 27, 1920, p. 1597) were in view of the celebration of the seventh centennial of the Montpellier Faculty of Medicine and not of the University of Montpellier, for it is a peculiar fact that the Faculty of Medicine is more ancient than the university proper. It was on Aug. 17, 1220, that the legate of Pope Honorius III, Cardinal Conrad d'Hurach, Count de Seinen, bishop of Porto and of Sainte-Rufine, gave the Faculty of Medicine of Montpellier its charter. In an interesting article on the ancientness of the Faculty of Medicine of Montpellier, published in the *Languedoc médical*, Dr. Paul Delmas, himself agrégé professor of the faculty, points out that the origin of the medical faculty of Montpellier dates back even farther than the charter. Cardinal Conrad d'Hurach gave merely his official consecration to a learned body of old renown, as is clearly shown by the wording of the first charter given the Medical Faculty of Montpellier, which reads: "For a long time past, the science of medicine has flourished at Montpellier with distinguished glory, from which center it has spread throughout the world its salutary influence and the multiplicity of its fruits."

It seems certain, as Delmas states, that, with the founding of the town of Montpellier as a trading center for the whole Mediterranean Basin, the market places of the city were thronged by a Judeo-Arabian element, who helped to keep alive hippocratic doctrines, which since that time have stood in such high favor in the school. The influx of the Jewish element seems to coincide, in point of time, with the beginning of the period dominated by Guilhem (about 990).

Compulsory Notification of Trachoma

In response to the request of the minister of public health, a committee, composed of Dr. Kermorgant, Dr. Jeanselme, professor of cutaneous and syphilitic diseases in the University of Paris, and Dr. de Lapersonne, professor of clinical ophthalmology of the University of Paris, has drawn up the following conclusions:

1. As regards the inspection of immigrants, if the rigorous measures adopted in the United States are not feasible, we ought at least to continue the systematic ocular examination of colonial laborers at the time they are engaged and also when they embark, as was done during the war.

2. Similar precautions should be taken at the frontiers, especially in the case of immigrants coming from infected countries: Italy, the Balkans, the Levant, etc.

3. When immigrants arrive in port, more particularly in Marseilles, the physical examination should include of necessity an ocular examination, and immigrants, as well as foreigners in general, should be required to furnish, besides the vaccination certificate, a certificate of ocular examination showing that the subject has no contagious eye disease.

6. Surveillance should be especially rigorous in the schools. Eye examinations should be more frequent, and suspects should be sent to the dispensaries and not allowed to reenter school without a certificate from an ophthalmologist. If such cases should prove to be numerous, special classes of trachomatous pupils should be formed and completely isolated.

7. The campaign against trachoma should be pursued with great energy in our colonies and protectorates.

LONDON

(From Our Regular Correspondent)

Jan. 24, 1921.

The Dangerous Drugs Act

An act termed the Dangerous Drugs Act became law last August. Draft regulations have now been issued by the government for carrying it out. They are based on two sections of the act: one for controlling and restricting the possession, sale and distribution of raw opium; the other for controlling the manufacture, sale, possession, distribution of morphin, cocain, ecgonin and diamorphin (commonly known as heroin) and their respective salts, and medicinal opium and preparations and substances containing not less than 0.2 per cent. of morphin or 0.1 per cent. of the other alkaloids. In regard to morphin and the other alkaloids, no one shall manufacture them or carry on any process in their manufacture without a license, except on licensed premises, or otherwise than in accordance with the terms of the license. No one shall supply or procure raw opium or any of the drugs mentioned for any person whether in the United Kingdom or elsewhere, nor advertise them for sale, unless licensed to do so and only when the drugs are lawfully dispensed in pursuance of a prescription given by a legally qualified physician in accordance with certain conditions. Exemption may be granted for dispensing at a public hospital and on board ship. The prescription must be in writing, must be dated and signed by the practitioner with his full name and address and qualifications and marked with the words "Not to be repeated," and must specify the total amount of the drug to be supplied on the prescription, except that in the case of prescriptions issued for national health insurance purposes on the forms provided by the Insurance Committee, the physician's address and qualifications and the words "Not to repeated" need not be marked on the prescription.

Certain conditions must be observed by persons, including physicians, dispensing prescriptions for the drugs: The prescription shall be marked with the date on which it is dispensed, and shall (unless issued for national health insurance purposes on the official form provided) be retained by the person, firm or body corporate by whom it is dispensed, and shall be kept on the premises where it is dispensed. The drugs shall not be supplied more than once on the same prescription. The ingredients of the prescription, with the name and address of the person to whom it is supplied or delivered, shall be entered in a book specially set apart for this sole purpose and kept on the premises where the prescription is dispensed, so that at all times it shall be available for inspection. No one shall be in possession of raw opium or any of the drugs mentioned unless he is licensed to import or export, or to manufacture or supply the drug, or unless he can prove that the drugs were supplied in accordance with a legitimate prescription. Any duly qualified physician, or registered dentist or veterinary surgeon, or person employed or engaged in dispensing medicine at any public hospital or other institution, being a person duly qualified under the pharmacy act, is authorized so far as is necessary for the practice of his profession, to be in possession of and to supply drugs. No one shall supply any article into the composition of which any of the drugs enters in a package or bottle which has not plainly marked on it the amount of the drug in the article, and the total amount in the package or bottle, and, in the case of solutions, the amount and percentage of the drug in the solution. Every person who supplies raw opium, including any physician, shall enter in a book kept for the purpose all the supplies obtained by him and all dealings effected by him. Separate books are to be kept for: (*a*) cocain and ecgonin and substances containing them; (*b*) morphin and substances containing it; (*c*) diamorphin and substances containing it; (*d*) medicinal opium. Entry is

to be made on the day the drug is received and on the day on which the transaction is effected. The book shall be at all times available for inspection. No cancellation, obliteration or alteration is to be made, any mistake in an entry being corrected by a marginal note or footnote.

The Ratten Case

The case of Ratten, a physician practicing in Tasmania, whose diploma, said to have been granted by the defunct Harvey Medical College of Chicago, has been questioned, appears to have reached a termination. As stated in a previous letter to The Journal, an application was made by the Medical Council of Tasmania to the supreme court for the creation of a commission to take evidence in Chicago, and was refused. In October the premier was asked in the House whether he had any statement to make in regard to "the action of the Medical Council in its persistent persecution of Dr. Ratten." The premier stated that the government was not prepared to undertake any responsibility for the financing of an appeal against the judgment of the supreme court. Later he introduced a bill to amend the medical act. It provided that application for removal of a physician's name from the Medical Register shall not be made unless the alleged offense was committed within seven years of the time of such application. In introducing the amendment he said the only way of reaching finality was by validating Ratten's registration. In the course of a lively debate it was suggested that the bill would enable any man guilty of fraud to escape the consequences if he could cover up the traces for seven years. One member read a letter written by Ratten to the Tasmanian branch of the British Medical Association in 1916, fifteen months before he was appointed to the Tasmanian General Hospital, complaining that his name was not included in the list of members of the branch. He also read letters proving that the branch had his case under investigation from this time onward. Thus the validity of his diploma was questioned before he came to the assistance of the government. It may be remembered that Ratten's supporters alleged that the action of the association in questioning Ratten's diploma is due to resentment at his refusal to join the "strike" against the conditions of service at the Tasmanian General Hospital. It was also stated that when the case was under investigation, Ratten admitted that he had never been at the Harvey Medical College, although he held its diploma. Another member pointed out that if Ratten was forced to go to America they would secure a triumph for the British Medical Association, which wanted to get rid of him. The premier, in closing the debate, brushed aside the suggestions that finality could be reached in any other way than that provided in the bill. Had he been satisfied that the opposition to Ratten had been raised in the interests of the public, that would have weighed with him. He was, however, satisfied that it had not been so raised. The second reading was carried by 21 to 7.

MEXICO CITY

(From Our Regular Correspondent)

Jan. 30, 1921.

Postgraduate Course at the School of Medicine

The officials of the school of medicine inaugurated a postgraduate course which was given during December and January, while medical students were away for their vacations. This course included a series of sixty lectures, some of them illustrated. They were given by the professors and other well known physicians. About twenty-five physicians from different towns enrolled for this course and received a certificate on completion. The course included special subjects which were considered of interest in internal medicine, obstetrics and surgery. Undoubtedly it will be possible to improve this form of teaching by means of programs better prepared, and by correcting the defects observed. These postgraduate courses are a happy innovation, and their first trial has given satisfactory results.

American Medical Literature

It has long been known to Mexican physicians that the American school with its numerous workers has a personality of its own. However, the abundance of excellent European works, especially French, and the lack of familiarity with the English language, have prevented physicians from devoting the proper attention to American books. The lack of any French books during the war, and the active propaganda of American publishers, have changed the situation completely. A few years ago there were few Mexican physicians who had more than two or three American books. The present change may be inferred from the fact that during the year 1920 one single agent of an American publishing house sold over $12,000 worth of medical books. This does not imply that Mexican physicians neglect European authors; but, aside from their intrinsic worth, American medical publications, books as well as periodicals, reach us much more quickly and are more timely than those of the Old World. The good results of this intellectual intercourse may seem slow, but they are certain to come and they will be mutually profitable.

Personal

Dr. Hircano Ayuso has become acting governor of the State of Yucatán.——Dr. Cutberto Hidalgo resigned the position of secretary of state in President Obregón's cabinet.——Dr. Francisco E. Canale has been appointed secretary of the school of medicine in lieu of Dr. Fernando Ocaranza, who has become a member of the council of public health.——Dr. J. Velásquez Uriarte has been appointed professor of abdominal surgery and gynecology in the postgraduate school.——Drs. F. Castillo Nájera and Alberto Román have been appointed members of the superior council of public health.——Dr. George Leblanc of the Rockefeller Institute is now at Vera Cruz conducting studies on the parasitology of yellow fever.——Dr. Clarence A. Baer of Milwaukee was in this city on his way to Mérida, Yucatán.

PRAGUE

(From Our Regular Correspondent)

Jan. 31, 1921.

Health Centers

The division of social pathology in the ministry of public health is carrying out its program on the health center idea. Dr. Hamza, the chief promoter of the idea, wants to have the centers run by local committees from local resources. The state offers subsidies for investments in buildings and equipment. There are nine centers already in operation, and several more are being prepared. The centers have always their own building and a full time staff. The health center usually consists of a tuberculosis dispensary, child welfare clinic and a venereal diseases dispensary. The plan is to add departments on mental hygiene, gynecology and eye clinics later on. A public health nurse is connected with the center and does the home visiting and social work for the patients.

Organization of Public Health Council

There has been a strong feeling among the private health organizations that their functioning could be greatly improved if there was an agency that would coordinate all their activities. As a result of this a public health council has been formed under the leadership of the Czechoslovak Red Cross. The Masaryk Antituberculosis League, Society for the Prevention of Venereal Diseases, Sokols (Association for the Promotion of Physical Education), Infant Welfare Asso-

ciation and the Red Cross are represented. They will meet once a month and will discuss their plans. Branches of the council will be formed in smaller cities all over the republic.

Appropriation for Tuberculosis Dispensaries

The Masaryk Antituberculosis League appropriated 500,000 Czechoslovak crowns for stimulating the creation of tuberculosis dispensaries. There are forty-four already in existence. Every local branch will get its equipment for a dispensary from the league if it lives up to the standard for the management of a dispensary which was recently published by the league. The reasons for stimulating the fight against tuberculosis are only too many. The tuberculosis death rates compiled recently by the ministry of public health for the year 1918 show that ten political districts in Bohemia have a rate over 500 per hundred thousand inhabitants. The highest rate in Bohemia was 916 for the district of Karlin. The situation in Slovakia is much worse, but there are no reliable statistics available for that part of the republic. The estimate says that there were 60,000 deaths from tuberculosis last year in the republic, which would make a rate of some 450 for the country as a whole.

Opening of New Medical Schools

Both medical schools in Prague are greatly overcrowded. There are about 3,000 medical students at the Czech school and 2,000 at the German school. Of course there are many foreign students among them, chiefly from Poland, Russia, Jugoslavia, Hungary and Austria. The Czechoslovak government opened a new medical school in Brno and another one at Bratislava in order to relieve the congestion somewhat. The first part of the study, five semesters, is offered at Brno, the second part, five semesters, at Bratislava. There are about 800 students at Brno and 250 at Bratislava.

Proposal to Legalize Interruption of Pregnancy

A rather curious bill was introduced into the parliament by the socialistic deputies allowing the physicians the interruption of pregnancy if it is the wish of the woman, unless the pregnancy is farther advanced than three months. The reason was that abortions are being made now frequently by incompetent persons and that the law would give the physicians control over these dangerous operations. The sponsors of the law pleaded that the woman has the right to decide whether or not she wants to be a mother. The medical profession and public opinion took a firm stand against the law because it would undoubtedly lead to general dissipation of morals and loosening of decency. It is most probable that the law will not pass.

VIENNA

(From Our Regular Correspondent)

Jan. 18, 1921.

Statistics as to Practicing Physicians in Austria

The municipal board of health has just issued a leaflet dealing with statistics of practitioners in Vienna and the flat country during and since the war. In the second half of 1914, 107 physicians applied for permission to settle in this country, of whom fifteen settled in Vienna. In 1915, the figures were 104 and 28, respectively; in 1916, only 49 newcomers, with 18 in Vienna; in 1917 there were 60, with 25 in Vienna. In 1918 a sudden leap resulted: 265 new men, of whom 161 took up their residence in Vienna. In 1919 the figure went up to 429, of whom 332 selected the capital as their abode; in 1920 the figure dropped to 370, with 298 settling in Vienna. The sudden increase in 1918 is no doubt due to the breaking up of the empire, when numerous physicians of German nationality who practiced formerly in the provinces were forced by more or less violent persuasion to get out, when, as a matter of course, they flocked to Vienna. Thus it happened that out of 6,006 physicians in Austria, no less than 4,160 live, or try to live, in the one city of Vienna, a proportion of 1 physician to 450 inhabitants. In this respect, too, it is apparent that this country is similar to a monstrous dwarf with a huge hydrocephalus, unable to support itself.

New Hospitals in Vienna

One of the few central offices producing effective work in this country is our ministry of public health, which has called to life within the last few months a number of up-to-date hospitals and medical institutes. In spite of the serious general conditions, means have been found to secure not only the necessary men fit for the work, but also instruments, apparatus and funds to fight the severe ravages made by the consequences of war and famine.

A large orthopedic hospital has been opened in the fifth district of Vienna, devoted chiefly to the treatment of crippled children, and also of children suffering from tuberculosis of the bones. It accommodates 500 patients, and is under the direction of Professor Spitzy, who did good work among the men disabled by war. A department for artificial limbs and other prosthetic work is a prominent feature of this hospital, which at present is fully occupied. A roof garden enables the children to be outdoors all the time and to enjoy open air and sun treatment, and a large hall with gymnastic and mechanical apparatus provides for active and passive movements of the joints and limbs, as required.

Another hospital situated in the populous twelfth district is devoted to venereal diseases in women. The site was formerly occupied by a hospital for the insane. Extensive gardens and meadows permit agricultural work for the inmates, thus forming a sort of rural colony for the mental cure and education of the patients, of whom 500 can be received. Special care is taken not only to cure the patients of disease, but also to impress on them the advantage to be derived from honest work. As the overwhelming majority of the inmates are prostitutes, as a rule with a certain degree of mental inferiority, the combination of moral and physical treatment is expected to be beneficial.

An institute for diseases of the nerves—not mental disease—has also been opened recently on the outskirts of the city; it will accept chiefly patients with injuries to the head and nerves; a department for children with disturbances of speech and writing is annexed to it. A hospital for general work, including medical, surgical, dermatologic wards and a special department for treatment of tuberculosis of all kinds is now nearly completed. It will contain 600 beds. An interesting old hospital has been brought quite up to date in Baden, a suburb of Vienna, where the old military hospital has been rearranged and where hot sulphur springs were made use of to serve the needs of patients with rheumatism and sciatica. As a large number of men have brought home from the trenches of the war diseases of this nature, the hospital receives in first line such patients; but also private patients are treated there. Of course, all requirements of modern treatment of rheumatism are available, not to forget physicians and surgeons.

Health of Vienna Last Autumn

A marked increase in the infectious diseases of childhood, noticed in the summer of 1920, was more pronounced in the autumn months. Scarlet fever and measles, as well as whooping cough, are still increasing, while diphtheria has dropped below the average figure for the season. Also typhoid fever and dysentery, which were nearly absent before the war, owing to our excellent system of water supply and drainage, are quietly disappearing. All the cases reported recently took place among persons returning from captivity in eastern

Siberia. Mortality was high in October and November; in fact, it was higher than ever noted since many decades, except in 1918, when the grip wave raged in Vienna. Since May, 1920, it was noticed that the majority of deaths were due not to tuberculosis, as previously, but to heart disease and disorders of the circulatory system, or in other words, that the death rate of the higher age-periods has increased markedly in comparison with other years. The average monthly mortality was 2,400, or 148 more than in the previous months.

Anthropologic Investigations of Apprentices

In the course of exact examinations of schoolchildren and students as to the mental and physical capacity, two series of apprentices were made the subject of anthropologic investigations by experts of the board of health. Altogether, 5,920 youths between 14 and 19 years were examined, comprising all classes of population and vocation of both rural and urban families. On an average, the weight was found to be wanting by at least 5 kg., taking prewar conditions in consideration. For instance, boys of 14-15 years showed an average weight of 42.3 kg.; of 15-16 years, 45 kg.; of 16-17 years, 49.4 kg., and of 17-18 years, only 52.5 kg. Also the height measurements were 5 cm. (2 inches) below the average. The influence of occupation is striking. Apprentices to locksmiths showed a difference of from 3 to 5 cm. and 3 or 4 kg. in their favor when compared with saddlers of the same age. Mortality statistics are interesting. It must be kept in mind that two factors cooperate here: the constitution of the apprentice and the influence of his surroundings. Thus, the locksmith, whose physique is generally better, is less endangered by tuberculosis than the tailor or the bootmaker, even if the latter lives in the country. Care was taken to note the color of the hair and eyes of each individual, as it is the aim of the investigation to follow up their ultimate fate, and to study the effect of pigmentation on morbidity and mortality. The results of these examinations are not yet fully worked out, but they already give a certain insight into the variety of occupational risks. Similar investigations will now be followed up with the inmates of lung sanatoriums with the idea of studying the conditions governing the development and course of tuberculous infections, their spread and prognosis.

The Electropathologic Station in Vienna

In 1909 an institute was established for the study and treatment of electropathology (injuries by electric currents or by lightning) which had formerly been closely affiliated with the university clinic for internal medicine. During the war it was transferred to the military hospital in Vienna, where it was doing valuable work in connection with scientific research on electricity. At present it has been returned to the civil authorities, and Professor Jellinek is its director. All cases of accidents by electric currents (tramways, electric railways, dynamo machines) have to be referred to this institute. Apart from the pathologic changes produced by electricity in human beings, the physiologic effects of electric currents on living tissue as well as on inanimate material like stone, iron, cement, cloth and linenware, on metals and on leather are within its range of investigations. Excellent opportunity for medical study in this unusual and rather untilled field of science is offered.

Fight Against Alcohol Among Infants and Adolescents

By an order of the ministry of public health, all corporations caring for the welfare of infants or adolescents are ordered to pay special attention to prevent the administration of alcohol or beverages containing liquor to these persons. Especially persons accepting babies to rear are to be controlled by regular inspections.

Marriages

VANN M. MATTHEWS, Charlotte, N. C., to Miss Naomi Fogel of Binghamton, N. Y., January 15.

JOSEPH KEEFER FISHER to Miss Margery Isabel Oren, both of Harrisburg, Pa., January 23.

JOHN EWING CAVEY to Miss Florence Louise Bradley, both of Stratton, Colo., January 25.

CHARLES CADWALLADER to Miss Helen Washburn, both of Philadelphia, January 31.

MORRIS FRANK to Miss Miriam Segel, both of Boston, Nov. 25, 1920.

Deaths

Haller H. Henkel, Staunton, Va.; New York University, New York, 1898; aged 68; a member of the Medical Society of Virginia; for many years a member of the Staunton board of health; local surgeon for the Chesapeake and Ohio, and Baltimore and Ohio railroads; died, January 17.

Irwin Berry, Augusta, Ky.; Kentucky School of Medicine, Louisville, 1904; aged 42; a member of the Kentucky State Medical Association; captain, M. C., U. S. Army, and discharged, Jan. 8, 1919; died, January 27, from lethargic encephalitis.

John Francis Dillon, San Francisco; State University of Iowa, Iowa City, 1881; aged 65; at one time professor of materia medica, pharmacology and therapeutics in the College of Physicians and Surgeons, San Francisco; died, January 27.

Dwight Frans Morton ⊕ Taylorville, Ill.; Northwestern University Medical School, Chicago, 1902; aged 44; major, M. C., U. S. Army, and discharged, June 2, 1919; died at Philadelphia, January 27, from carcinoma of the intestine.

Stinson Lambert, Owensboro, Ky.; Hospital College of Medicine, Louisville, 1879; aged 68; a member of the Kentucky State Medical Association; at one time mayor of Owensboro; died, January 26, from cerebral hemorrhage.

Henry Frank Burman, Toledo, Ohio; Toledo Medical College, 1911; aged 42; a member of the Ohio State Medical Association; lieutenant, M. C., U. S. Army, and discharged, Jan. 3, 1919; died, January 27, from pernicious anemia.

Frank Monroe Weldy, Chicago; University of Illinois, Chicago, 1912; aged 32; a member of the Illinois State Medical Society; captain, M. C., U. S. Army, and discharged, July 29, 1919; died, February 5, from pneumonia.

Clarence Milton Parks, Tacoma, Wash.; Medical College of Ohio, Cincinnati, 1888; aged 57; at one time superintendent of the Western Washington Hospital for the Insane; died, January 19, from heart disease.

Frank Bell, San Diego, Calif.; College of Physicians and Surgeons, University of Southern California, Los Angeles, 1913; aged 34; a member of the Medical Society of the State of California; died, January 30.

Darius W. Owens ⊕ Hersman, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 75; a veteran of the Civil War; at one time president of the Brown County Medical Society; died, January 22.

Matthew J. Coveny ⊕ Spring Valley, Ill.; Detroit College of Medicine and Surgery, 1886; aged 60; at one time surgeon for the Chicago, Rock Island and Pacific Railway; died, January 27, from pneumonia.

Charles A. Ferris ⊕ Denver; Gross Medical College, Denver, 1901; instructor in obstetrics and gynecology in the University of Colorado; died, February 1, from glioma of the brain.

Malcolm B. MacLean ⊕ Chicago; Hahnemann Medical College and Hospital, Chicago, 1908; aged 41; a specialist in diseases of the eye, ear, nose and throat; died, February 11, from pneumonia.

John Parley Brown, Nunda, N. Y.; University of the City of New York, 1881; aged 67; a member of the Medical Society of the State of New York; died in Buffalo, January 18.

⊕ Indicates "Fellow" of the American Medical Association.

William Augustus Hunt ✠ Northfield, Minn.; University of Michigan, Ann Arbor, 1882; aged 62; third vice president of the Minnesota State Medical Association; died, January 27.

Robert H. Mobley, Uvalda, Ga.; University of Georgia, Augusta, 1901; aged 39; president of the Montgomery County Medical Society in 1918; died, January 18, from heart disease.

John G. Rushing ✠ Center, Texas; Baylor University, Dallas, Texas, 1911; aged 41; died, January 25, from the effects of injuries received when he was kicked by a horse.

James Richard Spencer, Hollins, Va.; University of the City of New York, 1888; aged 56; a member of the Medical Society of Virginia; died, Dec. 2, 1920, from pneumonia.

Joseph Barton Betts ✠ Buffalo; Albany (N. Y.) Medical College, 1894; aged 48; major, M. C., U. S. Army, and discharged, May 5, 1919; died, January 29.

James C. Smith, St. Joseph, Mo.; Missouri Medical College, St. Louis, 1881; aged 63; a member of the Missouri State Medical Association; died, January 27.

Laureston A. Merriam, Omaha; University of Michigan, Ann Arbor, 1873; aged 77; a member of the Nebraska State Medical Association; died, January 25.

Jackson David Horton, Aurora, Ind.; College of Physicians and Surgeons, Chicago, 1884; aged 60; died at the Deaconess Hospital, Louisville, February 1.

James H. Ewing, Baltimore; Eclectic Medical College of Pennsylvania, Philadelphia, 1876; aged 88; a veteran of the Civil War; died recently.

Phillias H. Boisvenu, Providence, R. I.; College of Physicians and Surgeons, Baltimore, 1899; aged 49; died, February 5, from pneumonia.

Peter Fairly, Jackson, Miss.; Tulane University, New Orleans, 1868; aged 81; died, February 1, from injuries sustained in a fall.

William E. Chapman ✠ Litchfield, Minn.; University of Vermont, Burlington, 1879; aged 63; died, February 6, from heart disease.

Henry Gordon McGill, Oakland, Calif.; University of the City of New York, 1892; aged 59; died, February 3, from heart disease.

Lewis Americus Ward, Bemidji, Minn.; Hahnemann Medical College and Hospital, Chicago, 1895; aged 54; died, January 16.

Idris Helen Briggs Gregory, Ontario, Calif.; University of Michigan, Ann Arbor, 1876; aged 66; died in Los Angeles, January 30.

William M. Meffert, Emporia, Kan.; Louisville (Ky.) Medical College, 1888; died in Kansas City, January 29, from diabetes.

John A. Robb, Catonsville, Md.; University of Maryland, Baltimore, 1880; aged 61; died, January 30, from pneumonia.

William Ambroise Hulen, Kansas City, Mo.; Missouri Medical College, St. Louis, 1890; aged 58; died, January 26.

William O. Trammell, Atlanta, Ga.; Atlanta (Ga.) Medical College, 1895; aged 63; also a druggist; died, January 30.

Lambert Holland Edgar, Philadelphia; University of Pennsylvania, Philadelphia, 1887; aged 66; died, January 22.

Thomas Francis Martin, Bridgeport, Conn.; University of the City of New York, 1874; aged 69; died, January 21.

Gabriel Harrison Parkhurst, Allendale, N. J.; Castleton (Vt.) Medical College, 1860; aged 84; died, January 29.

Almon Augustus Manson ✠ Chicago; Rush Medical College, 1903; aged 42; died, February 12, from nephritis.

John R. Huffaker, Knoxville, Tenn.; Chattanooga (Tenn.) Medical College, 1902; aged 48; died, January 23.

John Edward Fitzgerald, New York; University of Vermont, Burlington, 1902; aged 51; died, January 7.

Johnson Franklin McKneely, Clinton, La.; University of Louisville, Ky., 1912; aged 30; died, January 26.

Hamer S. Beasley, Pearson, Ark.; University of Arkansas, Little Rock, 1908; aged 51; died, January 27.

Percival Gates Kelsey, Evanston, Ill.; Chicago Medical College, 1864; aged 80; died, January 19.

Robert I. Battle, Cartersville, Ga.; University of Nashville, Tenn., 1861; aged 78; died, January 23.

Hugh P. Mack, St. Louis; St. Louis Medical School, 1884; aged 57; died, January 22.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WILLIAM F. KOCH CANCER REMEDY

Last week some space was given to the alleged cure for cancer put out by Dr. William F. Koch of Detroit. Incidentally it should be mentioned that Dr. Koch's article of Oct. 30, 1920, to which reference was made, appeared not in the *New York Medical Journal,* as stated, but in the *New York Medical Record.*

The following correspondence throws additional light on the subject:

To the Editor:—To the number of inquiries which you have received regarding the alleged cure of cancer by Dr. Koch, permit me to add the following personal experience. On July 1, 1920, I was asked to examine an ex-patient of mine whom I had not seen professionally for many years. Her husband frankly told me that for several months his wife had been treated by Dr. W. F. Koch for inoperable carcinoma of the pelvic organs, that he wished Dr. Koch to retain charge of the treatment but hoped I would give my opinion regarding certain nervous manifestations in the patient which were causing him (the husband) much concern.

At the same time, he showed me a letter written by Dr. Koch purporting to explain the symptoms and offering suggestions regarding treatment. I called on the patient and found her in the last stages of generalized carcinomatosis. Simple palpation of the abdomen revealed multiple nodules involving both lower and upper abdominal quadrants. I did not feel justified in making a pelvic examination but noted a profuse foul-smelling discharge on the vulvar pad. My prognosis did not meet with the deluded husband's approval. The patient died within a week and a necropsy confirmed the clinical picture of carcinomatosis. Enclosed is Dr. Koch's letter; the patient's name should of course be omitted if you see fit to publish this note.

GEORGE DE TARNOWSKY, M.D., Chicago.

The letter from Dr. Koch which Dr. de Tarnowsky enclosed with his own, follows. We have, of course, deleted the name of the patient.

June 28, 1920.

Dear Doctor: Mrs. ——— has absorbed and is still absorbing some killed tumor tissue. She has absorbed some three pounds, I judge. The results of the absorption are intoxication quite general (nervous, muscular, perhaps nephritic). The myocardium at present shows no signs of poisoning but the skeletal muscles and nerve do. The important toxin liberated by the killed tissue is methyl cyanimide which combines ammonia (NH_3) from the amino acids, and thus becomes methyl guanidine. This latter has produced in my patients an intoxication varying in similarity to: idiopathic tetany in children, chorea in children, eclampsia in women, and has even been so severe as tetanus in some of the muscle spasms; a toxic albuminuria has resulted in some of my cases.

All of my cases have cleaned up so far. Of course, I cannot predict in any individual case, except that when the absorption has been completed and the toxin all eliminated, everything should return to normal, unless the toxin has destroyed tissue beyond physiological repair. My suggestions as to treatment would be elimination, saving the kidneys as much as possible, by whatever methods you find best and necessary.

At present I am treating symptomatically thus—atropin as a guanidine antidote, arsenic as a chorea coupled antidote as a prevention to the production of guanidine from the cyanimide, the use of dilute hydrochloric acid has proven successful to me. Even a urine boiling solid—albumen has cleared up in one case in three days just by taking large quantities of ½ per cent HCl. I am explaining the factors I have contended with in these cases, but do not want to influence your plan of treatment when your judgment finds me insufficient.

Sincerely, WM. F. KOCH.

I shall have a publication out very soon on the treatment of these tetanics and eclampsia with HCl.

It is worth noting that this letter of Dr. Koch's was written June 28, just three days before Dr. de Tarnowsky saw Mrs. ——— and less than a week before she died of generalized carcinoma.

Not the least important element in the story which these two letters tell is the optimism engendered in the husband

of the poor cancer patient by the widely vaunted treatment of Koch. And herein lies one of the most pernicious features connected with the exploitation of alleged cures for cancer, tuberculosis, etc. All such remedies, whether fraudulent both in their inception and exploitation or those which while equally worthless are at least honestly put forward and are based on a certain amount of scientific investigation produce a profound and marked temporary change in the patient's condition. It is this that tends to warp the judgment not only of the unscientific layman, but also of the physician. The psychic element in cancer has been well described by Weil:

"Is it indeed, very remarkable that a patient who has been consigned to death as a victim of a hopeless malady, should regain his spirits and his appetite, when he is again confronted with the hope of a cure, and of the eradication of his disease? It is a phenomenon well known to every student of the disease that a large proportion of cases responds in just this manner to any treatment which is offered them. Osler has described a case of cancer of the stomach in which the mere visit to a consultant of sanguine temperament, though poor judgment, whose assurance of the patient that there was no possibility of cancer, resulted in a disappearance of all the symptoms and a gain of 18 pounds in weight. It is this psychic influence, which has occasionally deluded the honest student of cancer cure, and which has also so generously played into the hands of the dishonest."

BOROTETRAMINE ("BORO") NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report which declares Borotetramine (Takamine Laboratories, New York) inadmissible to New and Nonofficial Remedies.

W. A. Puckner, Secretary.

"Borotetramine" and "Boro" are names applied by the Takamine Laboratories to hexamethylenamin diborate. It is a molecular combination of hexamethylenamin and boric acid which is readily split into its components. The borates of hexamethylenamin have been known for some time. In 1907, the Atkiengesellschaft für Anilinfabrik. took out a patent in Germany (D. R. P. No. 188,815) covering the preparation of the monoborate, the diborate and the triborate of hexamethylenamin. The triborate has been used in medicine under the name "Borovertin."

According to an explanatory letter from the Takamine Laboratories, Borotetramine is not intended as a means of administering hexamethylenamin and boric acid but as a means of rendering the urine acid. The firm, however, has failed to submit any evidence that the oral administration of Borotetramine materially changes the true reaction of the urine. In any case the effect cannot be greater than that of the boric acid contained in Borotetramine. Boric acid has been tried in gonorrhea, but seems to have been abandoned by modern clinicians.

The manufacturer claims that the greater solubility of Borotetramine renders it more efficient than the ingredients taken separately. Such an increased solubility, however, is of no moment, first because the compound is broken up in the stomach into its components and second, because the solubility of boric acid is quite sufficient to insure its solution in the alimentary tract, especially in the intestine. Furthermore, Borotetramine must separate into its components before it can act; hence the administration of a compound presents no distinct advantage over a simple mixture of the components.

The Council holds that Borotetramine is a superfluous and therefore useless article, and hence not eligible for inclusion with New and Nonofficial Remedies.

General Practitioner and Tuberculosis.—The medical student of today is the medical practitioner of tomorrow, and the general practitioner is our first line of offense against tuberculous disease; yet it has been demonstrated by notification records that the early diagnosis of tuberculous disease is rather the exception than the rule.—H. Gauvain, *Brit. J. Tuberc.* **15**:3, 1921.

Correspondence

THE PROPER RECOGNITION OF THE CLINICAL PATHOLOGIST

To the Editor:—In The Journal, January 8, appears a communication from Dr. Gradwohl on the subject of laboratory technicians in the field of clinical pathology. I feel certain that this raises questions of vital importance to every clinical pathologist. Clinical pathology is a field in which the application of scientific methods to the practice of medicine has perhaps reached its greatest development. It is distinctly a form of diagnosis. Its successful application requires grounding in the fundamental medical sciences as well as thorough training in the clinical branches, so that not only may suitable methods of examination be accurately employed in a given patient, but also a correct interpretation of the results of the examination may be had. The general training of the medical curriculum cannot give the necessary special training for clinical pathology. Clinical pathologists must be recognized as specialists in the broad field of medicine, a conception which requires the clinical pathologist to be a medical graduate.

In the present tendency to have clinical laboratory work performed by these nonmedically trained, so-called "technicians" we are facing a situation whose logical development has possibilities potentially dangerous to the position of clinical pathology as a medical specialty. My original conception of the term "technician" was that it designated a type of laboratory aid capable of rendering general assistance about a laboratory, but not engaged in making diagnostic examinations, which were the function of the clinical pathologist. Recently the scope of the term has become enlarged, so that it includes the performance of diagnostic examinations. From a perusal of advertisements in The Journal, it would seem that some are extending the scope of the term to include persons not possessing medical training, who are to interpret the results of laboratory examinations as well. The present use of the term "technician" is therefore synonymous in some quarters with clinical pathologist, but more particularly for one without medical training.

I have observed some agitation for the establishment of special courses for the training of such nonmedical assistants, the proponents of the suggestions asserting that medically trained clinical pathologists required the assistance of such persons in their laboratories. Where the responsibility and direction of a technician's work rests on a medical clinical pathologist, I grant that the nonmedical technician occupies a definite legitimate field. But, on the other hand, there is a definite tendency on the part of medical practitioners of one type or another, men who themselves are not clinical pathologists, to establish personal private laboratories of their own and to install a nonmedically trained technician in the laboratory. Under such circumstances the technician becomes to all intents a clinical pathologist, as we find that such technicians also establish laboratories of their own and actually independently practice clinical pathology.

From what sources are the "technicians" encountered in the last two circumstances recruited? We find here persons who may or may not be college or high school graduates, or pharmacists and who have received more or less thorough training in other laboratories under presumably competent clinical pathologists. Their training for the most part has been in the narrow field of routine, and their knowledge is empiric. They are not qualified for work outside the narrow field of routine, as the accuracy of their procedures is uncertain and they are absolutely disqualified to interpret laboratory results or suggest new avenues of approach to a per-

plexed clinician. Is it any wonder, therefore, that practitioners sometimes disparage laboratory assistance and that some states, such as New York, are finding it necessary to adopt some supervision over laboratories in which clinical pathologic work is being performed?

What solution does this situation demand? In my opinion it will only be met when the medical profession recognizes that clinical pathology is a medical specialty and countenances the performance of clinical pathology only by adequately trained medical men. The men who so specialize and practice in this field at present are not receiving the proper support of the rest of the profession when the latter countenances the employment of so-called "technicians" by practitioners for clinical pathologic work, or the patronage of laboratories conducted by nonmedical technicians of uncertain training and competence. The existing medical practice acts are inadequate to meet this situation. Clinical pathologists should recognize that the present situation, if continued, will lower the plane on which laboratory diagnosis is conducted and hence diminish the standards of accuracy and reliability; that it will diminish instead of increase research productivity in this field, and that it will be increasingly difficult to encourage medical men with the necessary degree of special training to enter this field. Clinical Pathology will occupy a lower plane.

I am heartily in favor of special training for medical men who desire to enter the field of clinical pathology, but I am opposed to the present growing practice of permitting nonmedical individuals of uncertain training to practice clinical pathology. Public welfare is jeopardized and medical standards are lowered thereby.

MARK F. BOYD, M.D., Galveston, Texas.

MEDICAL BIBLIOGRAPHY AND THE PERPETUATION OF ERROR

To the Editor:—The extent to which a scientific article should give bibliographic evidence of research in the literature on the part of its writer cannot be determined by rule. The character of the subject, the degree of familiarity with it possessed by the intended readers, the method of approach by other authors, and a dozen other factors will decide for the writer whether he should attempt a complete analysis of the literature of his subject, include a comprehensive annotated bibliography, append a complete author-subject list, content himself with citations of authorities, broadly summarize the literature without citations, or perchance ignore his predecessors entirely. In its proper setting, any one of these courses might be found satisfactory and sufficient; but the more limited the topic, the more precise its application, the more necessary does it become for the author to give evidence of familiarity with the literature of the subject concerning which he writes. He can best do this by such bibliographic apparatus as may be found necessary, for, to those expert in his own line, his thesis may exhibit abundant internal evidence of the possession of such familiarity and yet be judged inadequate and superficial through lack of external evidence when read by the inexpert. Thus it has come about that a criterion invariably applied to the written presentation of the results of a scientific investigation is whether or not it is accompanied by an adequate bibliography. One need not dip very far into current medical literature to discover why a real necessity for the application of this test exists.

As one corollary to this condition has been developed the use of coarse, bulky, undigested and unassimilated bibliography to give volume and dignity of appearance to an article altogether unworthy of such an appendage. If a bibliography is a good thing, insuring a hearing by a respectable audience, let us have a bibliography and that a long one.

It is a second corollary, however, which prompts the writing of this note. The author of a scientific communication, altogether sufficiently familiar with the literature of his subject, knowing that it has been abstracted from various angles by twenty or a hundred others before him, still feels that his paper must give external evidence of his familiarity. So he appends his bibliography and cites his authorities. But he avails himself of the abstracts and bibliographies of one or more of his predecessors and does not go to the original sources. He may not realize that some of his forebears have done likewise, and hence the perpetuations of error, misquotations, false translations and, above all, incorrect references, passed along from one to another, unchallenged and uncorrected.

If an example is needed (let us hasten to state that in quoting one no personal application is intended, and apologies are tendered), the adventure in bibliographic research here narrated may serve.

In an article on "Primary Tuberculosis of the Faucial Tonsils in Children" (*Journal of Pathology and Bacteriology* **21**:248-266, 1916-1917) Mitchell writes:

> Orth (1879[30]) seems to have been the first to have recorded a case of primary affection of the tonsil. He found tuberculosis of the tonsils in children who had died of diphtheria, the lungs being free from tuberculosis.

The reference (30) cited is Orth, *Virchows Archiv*, Berlin, 1879, Bd. LXXVI, s. 222. This is found to be Orth's important paper on the experimental study of ingestion tuberculosis. Page 222, which is the sixth page of the article, details the results as observed in Dog 17, in which tuberculous lesions of the tonsils and base of the tongue were noted. There is no record on this, or the preceding or following pages, of the observation of primary tonsillar tuberculosis in children dying of diphtheria.

Mitchell had access to an article by Carmichael (*Proceedings of the Royal Society of Medicine* [Section for Diseases of Children] **3**, pt. 1, pp. 27-36, 1910), for the reference is found in his bibliography. In this article Carmichael writes:

> Orth seems to have been the first to have recorded a case of primary affection of the tonsil.

Carmichael's reference, as well as the diction, is identical with that just quoted from Mitchell, and, as we have just seen, refers the reader only to experimentally produced lesions in dogs.

Mitchell also refers to an article by Bandelier (*Beiträge zur Klinik der Tuberculose* **6**:1-44, 1906). On the eleventh page of this article, Bandelier thus refers to the work of Orth:

> (Translation) Orth, who was the first to observe primary tonsillar tuberculosis in children dying of diphtheria, and otherwise tuberculosis-free, was able to produce cervical node tuberculosis in puppies by feeding tuberculous material, in one instance with a macroscopically demonstrable primary tonsillar tuberculosis.

In his bibliography, Bandelier gives the same reference as Mitchell and Carmichael, but without mentioning the page pertaining to Dog 17, to the article by Orth in *Virchows Archiv für pathologische Anatomie*, which, as we have just seen, is a proper citation only for the second part of his abstract. As a reference, it is but a half truth at the best. The whole truth must be sought a step farther back.

Mitchell and Bandelier both refer to a bulky article by Friedmann (of serum therapy fame) which is found in the *Beiträge zur pathologischen Anatomie* **28**:66-135, 1900. Here we find a possible source of the faulty references of Mitchell, Carmichael and Bandelier.

> (Translation) Orth[13 14] found tuberculosis of the cervical nodes in seven out of nine puppies fed tuberculous material; in part of the animals specific ulcers of the mouth were met, and once tuberculous lesions of the tonsils. Further, the same author has found tubercles, without pulmonary tuberculosis, in the tonsils of children dying of diphtheria.

The two references given are true and complete. The thirteenth is to the article in *Virchows Archiv* and the fourteenth to Orth's "Lehrbuch der speciellen pathologischen Anatomie," on page 663 of which (1887 edition) the observation of primary tuberculosis in children dying of diphtheria is noted. This is the probable source, and the sequence given above, a possible pedigree, for Mitchell's false reference. Whether other generations were present in the chain and to what extent collateral inheritance took place has not been investigated.

Friedmann's method of giving double references without specifying the application of each was awkward, but would have caused no trouble had those desiring to present an abstracted bibliography of tonsillar tuberculosis consulted the original sources. Medical literature is strewn with bibliographic items similarly unverified, giving the impression of abundant and accurate library research on superficial examination, but proving very disappointing when their verification is attempted. The moral is obvious.

CARL VERNON WELLER, M.D., Ann Arbor, Mich.
Assistant Professor of Pathology, University of Michigan Medical School.

A CREDITABLE NECROPSY RECORD

To the Editor:—One of the criteria of the interest taken by members of a hospital staff in the scientific side of their profession is the ratio borne by the number of necropsies to the number of deaths occurring in any service. During the last year an especial effort has been made in my service at the Episcopal Hospital in this city to stimulate an interest on the part of all concerned in ascertaining by postmortem examinations not only errors in diagnosis but also faults in treatment (both of omission and of commission).

There were, in all, forty-three deaths; in these cases, complete necropsies were obtained in twenty (46.5 per cent.), and partial necropsies in ten (23.2 per cent.), or a total of thirty postmortem examinations (70 per cent.). Included in the foregoing there were twenty-nine deaths in patients who had been subjected to operation, and in twenty-three (79.3 per cent.) of these, postmortem examinations were held. Thirteen (43.7 per cent.) were complete necropsies, and ten (34.4 per cent.) were partial necropsies in which all that was essential was ascertained. Among fourteen deaths in patients who had not been operated on, there were held seven (50 per cent.) formal necropsies.

This record, which I feel is creditable, could not have been secured without the active cooperation of the entire staff: associate surgeons, chief resident physician, ward surgeons, and laboratory force.

ASTLEY P. C. ASHHURST, M.D., Philadelphia.

Group Medicine.—Properly considered, group medicine is not a financial arrangement, except for the minor details, but a scientific cooperation for the welfare of the sick. Medicine's place is fixed by its services to mankind; if we fail to measure up to our opportunity it means state medicine, political control, mediocrity, and loss of professional ideals. The members of the medical fraternity must cooperate in this work and they can do so without interfering with private professional practice. Such a community of interests will raise the general level of professional attainments. The internist, the surgeon, and the specialist must join with the physiologist, the pathologist, and the laboratory workers to form the clinical group which must also include men learned in the abstract sciences, since physics and biochemistry are leading medicine to greater heights. Union of all these forces will lengthen by many years the span of human life and as a by-product will do much to improve professional ethics by overcoming some of the evils of competitive medicine.—W. J. Mayo, *Surg., Gynec. & Obst.* **32**:102 (Feb.) 1921.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

METOL DERMATITIS ("PHOTOGRAPHERS' ECZEMA")

To the Editor:—The other day a photographer consulted me for cutaneous lesions around the inner canthi of both eyes, and large areas on the anterior surface of the left knee and groin. The lesions did not have the appearance of psoriasis but rather that of "weeping" eczema. The family history was negative for psoriasis or other similar skin lesions. Further history elicited that the lesion first appeared about 1912; and at this time the patient began using, in developing, a German preparation called Metol (Hoff), handled solely by G. Gennert, 2426 East Thirteenth Street, New York, which chemical is now widely used in photography. Furthermore, the patient has a friend who cannot come into the room where this product is used without having, as a result, intense itching and a fine papular eruption on variable places of the body.

The indexes of THE JOURNAL, for several years back, give no information on this subject. Can you give me any source of information on this subject?

PARK L. MEYERS, M.D., Toledo, Ohio.

ANSWER.—Workers in photographic establishments, especially those engaged in the developing process, are exposed to a number of industrial poisons, such as bromin, chromium, "metol" (a trade name for mono-methyl para-amido meta-cresol sulphate), cyanogen, platinum, vanadium, anilin and mercurial compounds. Kober and Hanson (Diseases of Occupation and Vocational Hygiene, Philadelphia, 1916, p. 616) state that "in an examination of forty studios in Chicago by Dr. Karasek, platinum paper was found to be the cause of eight cases of poisoning, characterized by 'pronounced irritation of the throat and nasal passages, causing violent sneezing and coughing; bronchial irritation, causing such respiratory difficulties as to preclude the use of the paper entirely for some individuals, and irritation on contact with the skin, causing cracking, bleeding and pain.' Metol poisoning, characterized by an erythematous rash of the hands and arms, occasionally involving other parts of the body and giving rise to ulcers, was found in thirty-one cases in this same study. The developing process frequently gives rise to inflammatory conditions of the hands (eczema), ulcers and pigmentation unless protected by rubber gloves."

The so-called "photographers' eczema," the most common disease of this occupation, is due to "metol." In an answer to a query in this department several years ago (Metol Dermatitis, THE JOURNAL, Feb. 15, 1915, p. 610) concerning the method of treatment for this condition, it was stated that:

> There have been various recommendations for prophylaxis and treatment. Coating the hands with petrolatum before beginning development is a useful precaution. L. A. Freeman (*British Journal of Photography*, June 5, 1914) recommends that 2 drops of pure phenol (carbolic acid) be added to a quart of cold water. Immerse the hands in it after the use of metol, and warm gently over a gas flame until the heat is no longer tolerable. Then wash thoroughly with carbolic soap and dry well.
>
> Before the skin is broken, N. T. Beers (*New York M. J.*, Sept. 10, 1908; abstr., THE JOURNAL, Sept. 26, 1908, p. 1107) recommends soothing applications, such as lead lotion. After the skin is broken, care must be taken to protect the parts thoroughly and to use the blandest of applications. Zinc stearate with 1 or 2 per cent. of phenol or salicylic acid makes a useful dusting powder. In the later stages, more stimulating applications may be used, such as small amounts of oil of cade or of resorcin or ichthyol.
>
> This ointment has been advised: ichthyol, resorcinol, glycerin, of each, 1 ounce; zinc oxid, ½ ounce; white petrolatum, 6 ounces (*Brit. J. Photog.*, Nov. 7, 1913, p. 860).

IRON ARSENITE

To the Editor:—Can you inform me how iron arsenite can be prepared for subcutaneous injection? A commercial firm furnishes physicians with ampules of arsenite of iron. Is this really arsenite of iron?

S. H. KEMPNER, M.D., New York.

ANSWER.—Ferric arsenite (iron arsenite) is in itself relatively insoluble in water, but may be treated with ammonium citrate, the resulting product thus being soluble; the latter substance was at one time described in New and Nonofficial Remedies as "Ferric Arsenite, Soluble" and is sometimes sold as a solution in ampule form. In 1912, the Council on Pharmacy and Chemistry deleted "Ferric Arsenite, Soluble" from New and Nonofficial Remedies because "one cannot, in administering Ferric Arsenite, Soluble, give a useful dose of iron without giving too much arsenic; and, vice versa, one cannot give a safe dose of arsenic without giving too little iron." The Council, therefore, held the preparation to be irrational and unscientific.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 1. Sec., Dr. Harry C. Vighne, Juneau.

ARIZONA: Phoenix, April 5-6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

COLORADO: Denver, April 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Hartford and New Haven, March 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, New Haven. Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.

IDAHO: Boise, April 5. Director, Mr. Paul Davis, Boise.

MAINE: Portland, March 8-9. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

MASSACHUSETTS: Boston, March 8-10, Sec., Dr. Walter P. Bowers, Rm. 144, State House, Boston.

MINNESOTA: Minneapolis, April 5-7. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

NATIONAL BOARD OF MEDICAL EXAMINERS, St. Paul, Minneapolis and Rochester, Minn., Feb. 23-March 2. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

NEW HAMPSHIRE: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

PORTO RICO: San Juan, April 5. Sec., Dr. Manuel Quevedo Baez, San Juan.

RHODE ISLAND: Providence, April 7-8. Sec., Dr. Byron U. Richards, State House, Providence.

UTAH: Salt Lake City, April 4-5. Sec., Dr. C. L. Olsen, 932 South 5th East St., Salt Lake City.

MEDICAL EDUCATION AND PRACTICE IN CLEVELAND

Of the report[1] of the Hospital and Health Survey of Cleveland, Part 8 (pages 651 and 676, inclusive) deals with medical education and practice in that city. Since the only medical school in Cleveland is the School of Medicine of Western Reserve University, it was easy for the survey to place the responsibility for such conditions as were found, whether creditable or otherwise. The report brings out the following interesting data: (*a*) Each entering class of Western Reserve University School of Medicine is limited to fifty students. (*b*) A total of 5,136 classroom hours is scheduled for the complete course. (*c*) Of the 1,987 physicians who graduated from this medical school since 1860, 331, or 16.6 per cent., are practicing in Cleveland and constitute 28.3 per cent. of the 1,169 physicians practicing in Cleveland. (*d*) The 413 staff positions in the Cleveland hospitals are occupied by 309 physicians, seventy-six of these physicians occupying positions in from two to five hospitals. Of the 309 hospital staff in Cleveland, seventy-five, or 24.2 per cent. are occupied by graduates of Western Reserve University, and thirty-one, or 10 per cent., are occupied by teachers of the University who graduated elsewhere. (*e*) Of the 1,169 physicians in Cleveland, 878, or 75.1 per cent., are in general practice, while 291, or 24.9 per cent., are in the specialties. (*f*) Of the 291 specializing, ninety-one, or 31.3 per cent., claim surgery as their specialty; fifty-five, or 18.9 per cent., are practicing in diseases of the eye, ear, nose or throat, and the next largest number is twenty-three, who are specializing in diseases of children. (*g*) Of the 545 physicians who served internships in Cleveland hospitals during the last ten years, 196, or 36 per cent., are now practicing in Cleveland. (*h*) In the Cleveland hospitals during 1919 there were 455 necropsies, and of these 351 were conducted in the four hospitals connected with Western Reserve University School of Medicine.

The recommendations in the report, in substance, are that:

1. In order to strengthen the university organization, new members be added to the board of trustees representing industries, professions, the medical alumni and public services.

2. New medical buildings be erected on a site nearer the other departments of the university.

3. A plan for financial support be adopted so as to provide adequate salaries of teachers and for maintenance of the school.

4. The trustees discontinue teaching affiliations with all but the City, Lakeside, Maternity and Babies' hospitals.

5. Changes in the city charter be secured to insure the appointment of a board of trustees responsible for the administration of the City Hospital so as to guarantee a more permanent and satisfactory teaching relationship with the medical school.

6. The university discourage the employment of its officers on a part-time basis in city government positions.

7. More instruction in preventive medicine be included in the curriculum without necessarily increasing the hours of instruction.

8. Facilities for the training of physicians in industrial medicine, psychiatry, orthopedic surgery and urology be provided at the earliest opportunity.

9. The voting faculty drop absentee or inactive members and add ten or more assistant professors, demonstrators and others in order to make this body more representative of the actual teaching work.

10. Staff conferences be established to insure more uniform teaching policies in the various hospital services.

11. The department of pediatrics be made responsible for the care of new-born babies in the maternity hospital.

12. Financial provision be made at the earliest opportunity for graduate medical instruction.

1. Already referred to in THE JOURNAL, Feb. 5, 1921. See Current Comments, pp. 383, 384.

IMPROVED OUTLOOK FOR MEHARRY MEDICAL COLLEGE

After forty-four years of continuous service as founder and builder of the Meharry Medical College, a medical school for negroes at Nashville, Tenn., Dr. George W. Hubbard retired from its presidency, February 1. Dr. Hubbard is having the satisfaction of seeing the culmination of his hopes regarding an assured permanency of the medical school and the brighter prospects for its higher standing as an educational institution. Dr. Hubbard's successor is Dr. John J. Mullowney, formerly head of the department of science and professor of chemistry and biology at Girard College, Philadelphia. Dr. Mullowney is 42 years of age and was selected because of his hearty sympathy with negro education and his special fitness for the work as head of the medical school. The financial status of the college has been greatly improved by the gifts of $150,000 each from the General Education Board and the Carnegie Foundation for the Advance of Teaching which, with the $200,000 raised by the Board of Education for Negroes of the Methodist Episcopal Church, has established a total endowment of $500,000.

Wyoming October Examination

Dr. J. D. Shingle, secretary, Wyoming State Board of Medical Examiners, reports the written examination held at Cheyenne, Oct. 4-6, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 3 candidates examined, 2 passed and 1, an osteopath, failed. One candidate was licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Johns Hopkins University		(1919)	77.5
Jefferson Medical College		(1917)	90.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Western Reserve University		(1919)	Utah

Texas November Examination

Dr. Thomas J. Crowe, secretary, Texas State Board of Medical Examiners, reports the written examination held at Dallas, Nov. 16-18, 1920. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Baylor University		(1920)	81.5
Mexican National Homeopathic School of Medicine		(1916)*	94.5

* Graduation not verified.

Book Notices

A LABORATORY MANUAL AND TEXT-BOOK OF EMBRYOLOGY. By Charles William Prentiss. Revised and Rewritten by Leslie Brainerd Arey, Professor of Microscopic Anatomy at the Northwestern University Medical School. Third edition. Cloth. Price, $5.50 net. Pp. 412, with 388 illustrations. Philadelphia: W. B. Saunders Company, 1920.

This work is so widely and favorably known that the third edition does not call for extended comment. The figures of dissections and of reconstructions of embryos, which have formed a distinctive feature of this work from the first edition, are so beautiful, accurate and detailed that they are a delight to the experienced embryologist and a revelation to the student. No teacher of embryology can afford to be without the book if only for the sake of these remarkable figures; and, all things considered, it is probably the best book on embryology for the use of medical students in the English language. The present edition includes a new brief introductory chapter, and two or three new figures to replace old ones. The text has also been rewritten extensively, but without much additional material, though sufficient to bring it generally up to date. It is an introductory textbook, and, naturally, is not in any sense exhaustive. It is distinctly a book for the technical student with command of abundant material, and otherwise for reference on definite points. It is not a book to be read consecutively. The subject of embryology lends itself better than almost any other biologic discipline to consecutive and logical development, and such form of treatment was an outstanding characteristic of some of the older treatises, notably Hertwig's. The absence of such treatment is the most pronounced defect of this volume, which, it is to be hoped, may be remedied in the later editions certain to be called for. That this is a common defect of anatomic instruction in America makes it only the more regrettable that the part of the anatomic disciplines, which, by its very nature, invites philosophical treatment, should be presented as so much bare bones. If, for instance, one wishes to look up the subject of the placenta, one will find a few—very few—considerations on pages 74 and 75 as part of a chapter on "human embryos and fetal membranes"; and, if more information is desired, it is necessary to turn to the end of the chapter on the "urogenital system" (p. 230 ff.), where, for some mysterious reason, more data on the same subject are presented. But nowhere is there any adequate consideration of the way in which such an extraordinary organ has developed, or how it functions. As another illustration: the development of the face and of the oral cavity and its organs is an appendage to a chapter on "the dissection of pig-embryos," with which it has no logical connection whatever. The double function of the volume as laboratory manual and textbook is responsible for much of the lack of logical and consecutive treatment. The striving for condensation of statement, moreover, often leads to obscurity and infelicity of expression. These faults could be avoided in large measure by a more thoroughgoing isolation of the two functions of the book, and a slight increase of its size.

THE CHEMISTRY AND ANALYSIS OF DRUGS AND MEDICINES. By Henry C. Fuller, B.S., in Charge of the Division of Drug and Food Products, The Institute of Industrial Research, Washington, D. C. Cloth. Price, $10. Pp. 1072, with illustrations. New York: John Wiley & Sons, 1920.

Medicines are so complex and variable in composition that their analysis requires a skill, practice and familiarity with diverse analytic methods much beyond the routine customary in most industrial laboratories. The procedures necessary for the analysis of medicines are so varied, the analytic schemes so complicated, and the methods so widely scattered in pharmaceutical literature, that no single publication has heretofore attempted to deal with the subject as a whole. Unless an author has spent the major portion of a long lifetime in the critical comparison of methods, a subject so broad as the "chemistry and analysis of drugs and medicines" cannot be handled adequately except by compiling much of the information from the literature. The author of this book deserves credit for his accomplishments in this direction, since the task is truly a stupendous one. In some instances the compilation has not been critical. For example, it is well known that the U. S. P. IX method for the assay of oil of peppermint, as published in the text, was unsatisfactory because of imperfections in the formula for the calculation. Corrections were afterward made by the committee of revision, but these changes have not been incorporated in this book. In some cases the author has failed to give credit for information taken from the literature. The test for salicylic acid in acetylsalicylic acid and the description for ichthyol are taken essentially unchanged from the older editions of New and Nonofficial Remedies without quotation marks and without credit being given. Most of the medicinal substances likely to be found in secret remedies are considered in detail in this book, and considerable discussion is devoted to vegetable mixtures of the shotgun variety, with mention of the diseases in which they are claimed to be useful. Statements of this kind are always helpful to the analyst, as they often furnish hints as to what drugs should be looked for in an analysis. In a work in many other respects excellent, it is regrettable that space has been taken by the description of little used or worthless drugs, such as aralia, aletris and helonias (for which no chemical tests are known), while substances of wide application in medicine like oil of chenopodium, collodion, thyroid, scarlet R., acriflavine and benzyl benzoate (all evaluated chemically) are not mentioned. The World War brought about the manufacture by the Allies of many medicinal substances under free names which were formerly controlled by the Germans under protected names. In this book it is noticeable that the modern, scientific and accredited names of many of these medicines, such as benzocain, barbital, cinchophen and procain, are not given, but instead the protected names of German origin by which the substances were formerly known are used. Arsphenamin is a creditable exception. While the book will not be of much value to practitioners, it should prove helpful to medical experts and an aid to drug analysts and forensic chemists. It should be in laboratories in which medicines are analyzed.

A CONSULTING SURGEON IN THE NEAR EAST. By A. H. Tubby, C.B., C.M.G., M.S., Consulting Surgeon to the Westminster Hospital. Cloth. Price, 15 shillings net. Pp. 279, with illustrations. London: Christophers, 1920.

The author records his experiences as a surgeon at Gallipoli, in Egypt and in Palestine. The story is told as a simple narrative describing climate, supplies and transports, the hardships and difficulties that were overcome, and the final triumph. The clinical problems were not essentially different from those on other fronts. The sanitary problems were, however, distinctive; for example, the construction of a pipe line 15 miles long to carry water into the city of Jerusalem. The book is well illustrated and a worth-while contribution to the medical history of the World War.

LINCOLN LIFE SKETCHES. In Verse and Prose. By Garrett Newkirk. Cloth. Price, $1.25. Pp. 47. New York: Duffield and Company, 1920.

Dr. Newkirk dedicates his interesting booklet to Dr. Norman Bridge. The book contains twenty-one poems based on the life of Lincoln, with cross reference to twenty-one notes from the life of Lincoln which give the historical data on which the poems are based. In the supplement there are abstracts from famous Lincoln addresses. Dr. Newkirk is a physician who has made himself a name in the field of letters, this too, at an age when most physicians are content merely to rest. He graduated from Rush Medical College in 1868. His booklet is inspiring both for its intrinsic worth and as an example of geriatric accomplishment.

AN INTRODUCTION TO BACTERIAL DISEASES OF PLANTS. By Erwin F. Smith, in charge of Laboratory of Plant Pathology, Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C. Cloth. Price, $10 net. Pp. 688, with 453 illustrations. Philadelphia: W. B. Saunders Company, 1920.

This is a valuable addition of great interest to the literature of bacteriology. Medical bacteriologists will find it to their advantage to familiarize themselves with the methods of work and the results obtained by the authors. The last chapter, which deals with investigative work, makes entertaining reading and contains valuable suggestions for the directors of such work as well as for the beginners.

Miscellany

THE TRANSYLVANIA LIBRARY

From time to time, reports and rumors have been current concerning the valuable collection of old medical books in the Library of Transylvania University at Lexington, Ky. In the *Transylvania College Bulletin,* November, 1919, there is an interesting note as to these books, which are in charge of Elizabeth Norton as librarian. This collection was started on the foundation, in 1784, of the Transylvania Seminary, and its nucleus was a donation by Rev. John Todd of Virgina. Owing to lack of transportation facilities at this early time, Todd's collection was brought to the seminary through private subscription and installed in the seminary. That the value of a library was appreciated at that time and in a locality as little settled as was the "Western Country" is attested by the setting aside from time to time of funds by the seminary to add to those works originally contributed by John Todd. As early as 1795, there is record of purchases to the amount of over £278, not an inconsiderable sum for an educational center in the far lying district of Kentucky.

When Transylvania University was incorporated at Lexington in 1798, the aims of the board became more ambitious, and in 1821 Dr. Charles Caldwell of the medical college took with him to Paris $17,000 for the purchase of medical books. In his autobiography he says:

> The time of my arrival in Paris was uncommonly and unexpectedly propitious for my purpose. The ravages and wastelayings of the French Revolution had not entirely passed away, and the libraries of many wealthy and literary persons had found their way to the shelves of the bookseller. I found and purchased works which in no other way could have been collected so readily and so certainly and on terms so favorable. Hence the decided superiority of the Lexington Medical Library to any other in the West and South, and probably in the whole United States.

Another foreign purchase was made in 1839, in Paris and London, when Dr. Peter and Dr. Bush spent $11,000 for this purpose.

While the library is not unusually rich in first editions, it contains a well balanced collection of notable works; the medical items are of more than passing interest to those concerned with the history of medicine.

In the account which Mrs. Norton gives of this collection there are thirty-nine medical works described, and among them mention may be made of the following:

The only first editions in the list are a copy of William Harvey's "Exercitationes de Generatione Animalium," published in 1651, and Fabry of Hilden's work. The earliest published book is a translation of the Materia Medica of Discorides, and bears the date of 1529. Discorides, who was a Greek army surgeon in the service of Nero (54-68 A. D.), was the first to publish a materia medica, or at least an application of botany to medicine. Fabricius, who was Harvey's teacher at Padua, is represented by a work on anatomy bearing the date of 1625, and there is a volume of the collected works of Gabriel Fallopius, a contemporary of his, and a pupil of Vesalius, which was brought out in 1600. We note a copy of "De Sympathia et Antipathia Rerum" of Fracastorius, who, as well as being a physician, was a poet, physicist, geologist, astronomer and pathologist, and was the first scientist to refer to the magnetic poles of the earth. It was he who first gave the name to syphilis in his medical poem, "Syphilis sive Morbus Gallicus," published at Venice in 1530; and in his treatise "De Contagione" he forecasts the modern theory of infection due to micro-organisms. Leonardo Botallo, that "vampire of bloodletting," is represented in a book published in 1660. There is a copy of William Cowper's "Anatomie of Humane Bodies," which alas! is chiefly of note from the fact that while he himself wrote the text he shamelessly stole the 105 plates from the text of Bidloo's "Anatomy" published in 1685, a fact which Bidloo took vigorous exception to in his "Gulielmus Cowper, criminis literarii citatus," published in Leyden in 1700, which stands as proof that literary piracy is not altogether a latter day practice.

Nicholas Culpeper, the confident English herb doctor celebrated in Kipling's story, styles himself "Student in Physicke and Astrologie," and contributes "The Astrological Judgement of Diseases." His dedication has a familiar ring even now in view of the statements which appear in the public prints as to various nostrums. It reads, "To the Astrological Physicians of England, Nicholas Culpeper wisheth peace and prosperity in this world, and eternal beatitude in that which is to come. . . . These Rules will serve to ballance your judgement in sayling through the Prognostical part of Physick, so that you may steer your course by the Card of Truth and not float unsettledly upon the waves of Errour, Ignorance, or Opinion." It would appear that the advertising specialist could "get away with it" even in 1655.

There is a copy of Thomas Willis' "Pharmaceutice Rationalis," date of 1675, and also a two volume collection of his writings published at Geneva in 1689. In addition to his contributions relative to the nervous system it will be remembered that Willis was the first to give an account of epidemic typhoid as it occurred in the troops of the Parliamentary Wars in 1643.

The work of Paola Zacchias, the first on medical judisprudence, is also included in the collection.

In addition to those noted, there are a number of others worthy of inspection, even in the short list of the more notable which Mrs. Norton publishes. To any one interested in the beginnings of medicine and its curiosities, there is much in this catalogue of the Transylvania library to attract attention.

INHERITANCE AND EDUCABILITY

Dr. A. F. Tredgold, author of an important work on mental deficiency, recently read before the Eugenics Education Society of Great Britain a paper on "Inheritance and Educability." He pointed out that while the child's capacity for education depended to some extent on such influences as food, clothing, sleep and overpressure, the important cause of difference in educability lay much deeper and was due to inheritance. Children born and bred in virtually the same environment showed marked differences in educability. Galton had demonstrated the inheritance of ability and showed that the chance of a son of an eminent man showing eminent ability was about 500 times as great as that of the son of a man taken at random. It was impossible to avoid the conclusion that each person was born with a certain capacity for mental development, which might never be realized, but which could never be exceeded. Minor differences in educability might be due to the universal tendency to variation; but any marked falling away seemed to be pathologic and associated with defects of structure, which were due to germinal impairment brought about by adverse factors in the environment. He estimated that in 1906 there was at least one certifiable mental defective to 248 of the population, and the proportion had increased since then. There was a still larger proportion who, although not certifiable, had a subnormal mental capacity for development. They were not the descendants of a class or race which had never evolved; they represented a definite retrogression. Such germinal defect was transmissible, and the unrestricted propagation of persons thus tainted might produce a serious deterioration in the energy and capacity of the nation.

The important question arose, If the capacity of the germ plasma might be impaired, might it not also be augmented? In other words, might the stimulation of education and the exercise of mind, continued generation after generation, produce an increased capacity for mental development? The inheritance of acquired characters had been strenuously debated and was still *sub judice*. His own opinion was that there were many facts not to be explained otherwise. National progress depended on the utilization of all the national resources, and of these none was more important than the developmental potentiality of its citizens. Therefore both the immediate and the remote interests of the community demanded that every one should be afforded opportunity for the fullest development of which he was capable. That was

the task of education. But, though advances had been made, our educational methods were far from perfect. Much more might be done on physiologic lines to develop perception, discrimination, comparison, judgment and reasoning, and generally to educate mental capacity. Perhaps the greatest defect of our present system was that it did not take enough account of differences of innate potentiality. For children of low capacity much of the education now provided was wasted. On the other hand, those of high capacity did not get enough. In consequence of these fundamental differences, the catchword "equality of opportunity was meaningless." What was wanted was the higher education of children of good natural ability. To some extent this was done by means of scholarships, but their number might well be increased. But scholastic examinations were not entirely satisfactory tests and should be supplemented by medicopsychologic examination by which the durability and the capacity of the mind could now be ascertained. Finally, we should recognize that there were certain stocks whose germinal capacity was so impaired that they transmitted defective educability. Their mating with sound stock might disseminate the taint far and wide until it undermined the vigor of the whole nation. The remedy lay in the revival of the aristocratic ideal: not an aristocracy of rank wealth, but an aristocracy in the true sense of the word, consisting of all that was noble and capable in man, an ideal of the duty we owed to our children and their posterity in keeping them free from any tainted admixture, an ideal of biologic fitness and of their being truly "well born." This was the end and aim of eugenics.

Medicolegal

Privileged Communications and Patients' Declarations

(Maine v. Maryland Casualty Co. et al. (Wis.), 178 N. W. R. 749)

The Supreme Court of Wisconsin says that the plaintiff sought to recover on a policy of accident insurance for the death of her husband, which occurred thirteen days after he had moved a heavy icebox. On the day following the moving of the box he gave an indication of pain in his side by frequently placing his hand there and standing up; and the next day he lay down on a couch during the daytime, complaining of pain in the same place, which appeared to be over the gallduct. Shortly thereafter he was attended by physicians, and just a week after he moved the box he was operated on. The medical testimony showed that prior to his being sent to the hospital the diagnosis of some of the physicians was an infection of the gallbladder, but the operation disclosed that a part of the omentum had become gangrenous to an extent about the size of a hand. That was removed, but subsequently there developed a paralysis of the muscles in the walls of the intestine, and a secondary operation was performed. The distention of the bowels caused by the paralysis increased, and death resulted. The physicians testified that, considering what was disclosed at the operations and the necropsy, taken in connection with the statements which the patient had made to them, more than two days after the accident, as to the moving of the icebox, they ascribed the cause of his death as being traceable to such injury. However, on the motion of the defendant, the testimony of the physicians was striken out, as being privileged under Section 4075 of the Wisconsin Statutes, and after that a verdict was directed for the defendant, for lack of evidence showing the accident to have been the proximate cause of death.

In affirming the judgment dismissing the case, the supreme court says that, although Section 4075 makes no exception in terms as to the application of the peremptory language of the statute, excluding the testimony of physicians or surgeons as to information received by them professionally from a patient, yet it is well established that such statutory provision, being intended as a protection to the patient rather than a mere inhibition to the physician, is a protection or privilege that may be waived by him for whose benefit it is deemed to have been enacted, and therefore such testimony may, notwithstanding the statute, be admitted in evidence, it satisfactorily appearing that the patient's privilege has been waived. However, it cannot be waived by the administrators, executors or personal representatives of a deceased person, or by any person standing in a position toward the deceased such as did the plaintiff beneficiary under the policy in suit.

That such a statute as that which the public policy of the state has adopted for the exclusion of testimony involving information acquired in such confidential relationships as that between physician and patient, may and undoubtedly does in particular instances result in the defeat of meritorious claims, may and does make the court hesitate, but not pause, in unholding the law as it has been written. It must not be overlooked that such privilege is somewhat of a double-edged sword, in that the patient cannot waive his privilege so as to have admitted tesimony elicited from a physician favorable to his side of the controversy, and at the same time insist on the statute for the exclusion of further testimony on cross-examination or otherwise which may prove harmful to his cause. If the bars are lowered for and by him, they must be kept lowered for the opposite party. But the mere possibility of the need of such testimony in any action on an insurance policy does not justify a conclusion that the patient himself in the making of the contract for insurance thereby impliedly writes into it a waiver on his part of the statutory privilege. The trial court was therefore right in ruling that the information obtained by the medical witnesses while attending, prescribing for, and operating on the patient was not admissible in evidence, and should be excluded.

Moreover, the testimony of the physicians so excluded in this case would have been of no avail and weight without the declarations of the patient made to them some days subsequent to the accident, that he injured himself by the moving of the icebox; but such declarations were clearly hearsay, and inadmissible. Recitals of past events made by an interested person are no more admissible in evidence because made to physicians or surgeons, even when necessarily so made for the purpose of proper treatment, than if made to any other persons.

Fees Demanded by Expert Witnesses Allowed

(State v. Howell (La.), 85 So. R. 70)

The Supreme Court of Louisiana says that two physicians who were summoned from the city of New Orleans to the parish of Lincoln to testify in this murder case gave their testimony, and for their services they claimed $50 a day plus actual expenses. The court allowed $25 a day and expenses. They then took a rule on the police jury of the parish to show cause why they should not be allowed the amount claimed in full. The physicians stood very high in their profession, and testified that their charge was reasonable, in fact, moderate, less than what was usually allowed them as experts in court cases, and that, moreover, the amount was agreed on beforehand. There was no evidence to the contrary. The trial judge, however, thought that the matter was one wholly within the discretion of the court, and that, besides, the allowance was reasonable. But the supreme court holds these experts were entitled to the full value of their services, and that the evidence showed that this value was at least equal to the amount claimed, in consequence of which it amends the judgment appealed from by increasing it to $229.85 in favor of each physician, the parish of Lincoln to pay all costs.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Philadelphia, March 24-26.
American Association of Pathologists and Bacteriologists, Cleveland, March 25-26.
Midwinter Conference under the auspices of the Council on Health and Public Instruction and the Council on Medical Education and Hospitals of the American Medical Association, March 7-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Surgery, Chicago

January, 1921, **2**, No. 1

*Surgery of Substernal and Intrathoracic Goiters. J. deJ. Pemberton, Rochester, Minn.—p. 1.
*Are There Reliable Criteria of Operability in Exophthalmic Goiter? D. Cheever, Boston.—p. 21.
Repair of Bone Following Fractures. J. A. Blake, New York.—p. 37.
*Treatment of Fracture of Femur. K. Speed, Chicago.—p. 45.
*Association of Hepatitis with Experimental Cholecystitis and Its Bearing on Pathogenesis of Cholecystitis in Human. M. G. Peterman, W. A. Priest, Jr., and E. A. Graham, St. Louis.—p. 92.
Effect of Combined Radiation and Heat on Neoplasms. G. L. Rohdenburg and F. Prime, New York.—p. 116.
Unrecognized Occupational Destruction of Tendon of Long Head of Biceps Brachii. A. W. Meyer, Palo Alto, Calif.—p. 130.
Recurrence of Calculi in Common and Hepatic Ducts After Cholecystectomy. Report of Cases. G. E. Brewer, New York.—p. 145.
*Rôle of Ureteral Lymphatics in Experimental Urinary Tract Infections. V. C. David and P. M. Mattill, Chicago.—p. 153.
Nerve Suture: Experimental Study to Determine Strength of Suture Line. E. M. Miller, Chicago.—p. 167.
Correction of Scar Tissue Deformities by Epithelial Grafts. Report of Five Cases. E. B. Spaeth, Washington, D. C.—p. 176.

Substernal and Intrathoracic Goiters.—Within a period of approximately three and one-half years, 4,006 thyroidectomies were performed in the Mayo Clinic for simple colloid and adenomatous goiters. Five hundred and forty-two (13.5 per cent.) were found at operation to be substernal, and twenty-five (0.6 per cent.) of these were classified as intrathoracic. In seventy-two patients of the series, there were no symptoms other than the presence of a tumor. In 128 patients (25.4 per cent.), the goiter was associated with definite hyperthyroidism. Definite tracheal deformity was noted in 163 patients (30 per cent.). Dilated veins in the neck and on the chest wall were noted in fifty-eight patients (10.7 per cent.). Laryngeal examinations were recorded for 452 patients, and in forty-five (10 per cent.) a partial or complete paralysis of one or both cords was noted, although hoarseness was recorded in only twenty-nine patients. The results of the operation for the removal of substernal and intrathoracic goiters are very satisfactory. The patients are almost immediately relieved of most distressing symptoms. The mortality is low. There were sixteen deaths in this series of 542 operations (2.9 per cent.). Two are classified as due to faulty technic, one of these to the loss of blood after a thoracotomy for the exploration of a huge intrathoracic cancer, and the other to septicemia, probably originating from the wound. Three patients died from pneumonia. Eleven (68 per cent.) died from acute hyperthyroidism seventy-two hours following operation. The average preoperative basal metabolic rate was + 43. These patients were recognized as bad surgical risks; most of them had been treated medically before the operation.

Criteria of Operability in Exophthalmic Goiter.—The suggestion of Means and Aub that patients falling into their Type 2 "vagotonic" group give a more serious prognosis, does not seem to be wholly sustained by the cases presented by Cheever. Of four fatal cases, two belonged to the "sympathetico-tonic" and one to the "vagotonic" group, while one showed different phases, permitting its classification in either group. With regard to criteria of the ability of the patient with exophthalmic goiter to withstand the strain of operative therapeusis, Cheever agrees with others that during an acute exacerbation of the disease, or in periods of great mental depression, operation is contraindicated. Muscular weakness so great that the patient cannot walk and marked loss of weight with continued loss under absolute rest are serious contraindications. Organic visceral disease so serious as to jeopardize patients' having any operation of similar technical type is a contraindication. Operation should not be undertaken in the presence of an enlarged thymus, until its probable activity has been reduced by irradiation. The Jewish race offers a distinctly higher operative mortality. A metabolism of + 30 introduces a serious risk, which undoubtedly increases with high rates, but not necessarily in proportion, and there is no rate of metabolism which alone contraindicates at least minor surgical procedures.

Treatment of Fracture of Femur.—Speed analyzes 526 cases of fracture of the femur, observed in the Cook County Hospital and endeavors to outline a standard method of treatment, one which will make for better results. To overcome objections which can now be raised, Speed suggests that every patient with fracture of the femur should be directed to a hospital for roentgen-ray examination, correct treatment by any of the accepted methods, and after-treatment when cured. This includes fitting the patient with a walking caliper as soon as he is ambulatory or on his discharge from the hospital. Because fracture tables offer good means of securing reduction and an easy method of external splinting by plaster of Paris, every hospital receiving cases of fracture of the femur should possess a fracture or orthopedic table. Careful records should be kept in accordance with a fracture record sheet such as has been compiled by the American Surgical Association, so that a large number of average results can be grouped, that treatment looking toward the ideal may be worked out.

Association of Hepatitis and Cholecystitis.—After the experimental production of cholecystitis in dogs, inflammatory changes have been constantly found by Peterman and his co-workers in the liver. These changes have been of the same type as those previously described by Graham as occurring constantly in the human liver in association with biliary tract infections, namely, a pericholangitis with marked leukocytic infiltration of the interlobular sheaths. The same organism can be isolated from both the liver and gallbladder. Evidence is submitted that, owing to the free lymphatic communication between the liver and gallbladder, infection may pass easily from one organ to the other and a vicious circle be produced in this way. Infections of the gallbladder apparently by way of the lymphatics from the liver are easily produced experimentally. In any consideration of the pathogenesis of cholecystitis in the human, this lymphatic route must be regarded as important and probably frequent, although apparently it has heretofore received no attention. The probability of a frequent occurrence of a vicious circle between an inflamed gallbladder and an inflamed liver would seem to afford a strong argument in favor of cholecystectomy as an operation of choice in cases of cholecystitis.

Rôle of Lymphatics in Urinary Tract Infections.—Experimental observations have convinced David and Mattill that the lymphatics of the bladder and ureter play an unimportant rôle in the conduction of acute infections from the bladder to the kidney. Infectious material brought into intimate contact with the periureteral lymphatics does not affect them to any considerable extent and infection of the urinary stream does not result.

Arkansas Medical Society Journal, Little Rock

January, 1921, **17**, No. 8

Value of Rest in Valvular Diseases of Heart. R. Y. Phillips, Malvern.—p. 155.
Conservatism in Minor Surgery. J. M. Lemons, Pine Bluff.—p. 157.

Boston Medical and Surgical Journal

Jan. 27, 1921, **184**, No. 4

*Megacolon. W. E. Ladd, Boston.—p. 81.
*Megacolon in Adult: Report of Two Cases. P. P. Johnson, Beverly, Mass.—p. 88.
Conditions in Palestine During the War and Medical Relief Among Civil Population and Refugees. I. Alcazár, Boston.—p. 93.

Megaçolon.—From the literature Ladd collected 113 cases which, with five of his own, makes a total of 118. Sixty patients were treated medically, with forty-one deaths (67 per cent.); four remained unimproved; eight were improved; seven were cured. Surgically treated, fifty-eight, with twenty-fourth deaths (41 per cent.); two remained unimproved; eight were improved; twenty-four were cured. From these figures it would appear that the chance of curing a patient by the surgical treatment was over three times as good as by medical treatment. The chance of losing the patient is two thirds less. The number of improved is pretty similar with both lines of treatment.

Megacolon in Adult.—Johnson's patients were aged 60 and 29 years, respectively. In the first case the history dates back three years. The patient was an inmate of an asylum for the insane. An artificial inguinal anus gave relief. In the second case, the onset was sudden. The patient had been constipated since childhood. He was suddenly seized with severe, colicky, abdominal pain most marked in the umbilical region. Castor oil had been taken, causing the evacuation of hard fecal masses but giving little relief to the pain. During attempts to move the bowels there was severe abdominal pain sufficient to keep him from his work for from three to seven days. The diagnosis was congenital megacolon involving the cecocolon. A sigmoidectomy was done with end to end anastomosis between the descending colon and the rectum. As the open end of the rectum was fully 9 inches across, the posterior 4 inches were closed and the union was made with three rows of chromic gut sutures. The patient made a remarkable convalescence. He is entirely free from all of his previous symptoms.

Colorado Medicine, Denver

January, 1921, **18**, No. 1

Blood Transfusion. G. B. Packard, Jr., Denver.—p. 5.
Acute Lobar Pneumonia; Treatment. A. L. Burett, Silverton.—p. 14.
Early Diagnosis of Cancer. L. Freeman, Denver.—p. 17.

Georgia Medical Association Journal, Atlanta

January, 1921, **10**, No. 8

*Ductless Gland Therapy in Defective Children; Experimental Work in Mental and Physical Deficiencies and Birth Paralyses: Report of Cases. L. B. Clarke.—p. 223.
Removal of Foreign Bodies from Esophagus and Bronchial Tree. G. D. Ayer and J. H. Buff, Atlanta.—p. 230.
Extraction of Foreign Bodies from Trachea, Bronchi and Esophagus. Report of Ten Cases. C. L. Pennington, Macon.—p. 235.
Burns: Report of Case. H. C. Whelchel, Douglas.—p. 239.
Principles of Preventive Medicine as Applied to Obstetrics. R. A. Bartholomew, Atlanta.—p. 241.
Cardiac Conditions in Children, Their Significance and Prognosis. B. Bashiuski, Macon.—p. 246.
Value of Roentgen Ray and Electro-Therapy in Treatment of Cases Not Responding Satisfactorially to Ordinary Treatment. D. M. Bradley, Waycross.—p. 249.

Ductless Gland Therapy in Defective Children.—Clarke's work was limited entirely to infants and very few young children. As a result of his study, he has established to his satisfaction that many cases of apparent idiocy—the spastic child, the defective child—are due to disordered internal secretions, and that these cases are not, as hitherto supposed, hopeless. Schools especially conducted for the training of the defective child may prove useless and unnecessary, and it is possible that a few months treatment, as has occurred in many of Clarke's cases, may be of far more benefit toward developing a fairly good mental and physical condition than all of the schools for this purpose have ever accomplished. The birth paralysis type of infantile cerebral paralysis, whether it be spastic diplegia, paraplegia or hemiplegia, has shown remarkable improvement under treatment. Infant cerebral paralysis has been classified, in the main, as of three types with many variations: (1) intra-uterine origin, occurring prior to birth; (2) extra-uterine origin, occurring at birth, and (3) acquired. Clark insists that spinal fluid Wassermann and other studies of the spinal fluid be made in all cases in which nervous syphilis is suspected, and that roentgen-ray examinations of the sella turcica and surrounding structures are of great diagnostic value. Treatment with endocrine gland extracts resulted in satisfactory improvement in the cases studied.

Journal of General Physiology, Baltimore

January, 1921, **3**, No. 3

Numerical Law of Regression of Certain Secondary Sex Characters. A. Pézard, Paris.—p. 271.
Effect of Temperature on Bleaching of Visual Purple by Light. S. Hecht, Omaha.—p. 285.
Amphoteric Properties of Some Amino-Acids and Peptids. H. Eckweiler, H. M. Noyes, and K. G. Falk, New York.—p. 291.
Iso-electric point of Red Blood Cells and Its Relation to Agglutination. C. B. Coulter, Brooklyn.—p. 309.
Production of Volatile Fatty Acids by Bacteria of Dysentery Group. H. F. Zoller and W. M. Clark, Washington, D. C.—p. 325.
Response of Popillia Japonica to Light and Weber-Fechner Law. A. R. Moore and W. H. Cole, Riverton, N. J.—p. 331.
Antagonistic Action of Lanthanum as Related to Respiration. M. M. Brooks, Cambridge, Mass.—p. 337.
Differentiation of Leaf Tissue Fluids of Ligneous and Herbaceous Plants with Respect to Osmotic Concentration and Electrical Conductivity. J. A. Harris, R. A. Gortner, and J. V. Lawrence, Washington.—p. 343.
*Experimental Production of Gigantism by Feeding Anterior Lobe of Hypophysis. E. Uhlenhuth, New York.—p. 347.
Time and Intensity in Photosensory Stimulation. S. Hecht, Omaha.—p. 367.
Relation Between Wave-Length of Light and Its Effect on Photosensory Process. S. Hecht, Omaha.—p. 375.
Ion Series and Physical Properties of Proteins. III. Action of Salts in Low Concentration. J. Loeb, New York.

Experimental Production of Gigantism.—The experiments made by Uhlenhuth show that at least in one group of cold blooded animals, namely, salamanders, feeding of anterior lobe of the pituitary, leads to the attainment of a size considerably in excess of not only the normal "average" size, but of even the greatest known size of the two species (*Ambystoma opacum* and *Ambystoma tigrinum*) employed in these experiments. Growth of the animals fed on anterior lobe did not cease after they had reached the normal "maximum" size of the species, and experimental giants were produced.

Journal of Orthopaedic Surgery, Lincoln, Neb.

January, 1921, **3**, No. 1

*Anterior Bow-Legs. W. Blanchard, Chicago.—p. 1.
*Congenital Syphilitic Epiphysitis in Adolescence. E. J. Gaenslen and W. Thalhimer, Milwaukee.—p. 8.
Treatment of Fractures. H. W. Orr, Lincoln.—p. 23.

Anterior Bow-Legs.—Blanchard discusses this subject in general and reports four cases to illustrate his method of procedure in making a correction in these cases.

Congenital Syphilitic Epiphysitis in Adolescence.—In the case reported by Gaenslen and Thalhimer a diagnosis of infantile paralysis was made and the usual measures instituted for restoration of muscle power. Gradual improvement followed without other treatment, but the patient's general condition remained rather below par. One year later the patient returned with pain in the left hip and slight general indisposition. Examination showed tenderness over the left trochanter, slight limitation of motion in flexion, rotation inward and outward, other hip motions remaining normal. The temperature ranged between 99 and 100 F. Examination was otherwise entirely negative. Roentgenograms showed the trochanter to be rather flattened, with diffuse areas of rarefaction scattered throughout it and the adjacent portion of the femoral shaft. The epiphyseal line could not be made out, though it was still visible on the sound side. There was slight evidence of periosteal thickening of the shaft below the trochanter. The nature of the condition was entirely obscure, but tuberculosis or low grade pyogenic infection was at once excluded. Submission of microscopic slides to two pathologists of national reputation did not help to make the diagnosis in this case. The points which did assist in finally discovering the nature of the lesion were the periosteal thickening along the shaft of the femur, the recurrence of symptoms in three more or less definite attacks during the fifteen months the patient was under observation, the restlessness at night in spite of adequate fixation, and lastly the prompt and complete disappearance of pain on placing patient on antisyphilitic treatment.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

January, 1921, **16**, No. 6

Antagonistic Action of Epinephrin to Certain Drugs on Tonus and Tonus Waves in Terrapin Auricles. C. M. Gruber, Boulder, Colo.—p. 405.
*Absorption from Peritoneal Cavity. A. J. Clark, London, England.—p. 415.
*Absorption of Local Anesthetics Through the Genito-Urinary Organs. D. I. Macht, Baltimore.—p. 435.
*Quantitative Studies in Chemotherapy. IV. Relative Therapeutic Value of Arsphenamin and Neoarsphenamin of Different Manufacture. C. Voegtlin and H. W. Smith, Washington, D. C.—p. 449.
*Studies of Chronic Intoxications on Albino Rats. III. Acetic and Formic Acids. T. Sollmann, Cleveland.—p. 463.
*Effect of Morphin on Alkali Reserve of Blood of Man and Certain Animals. H. Gauss, Denver.—p. 475.
*Action of "Emmenagogue Oils" on Human Uterus. J. W. C. Gunn, Cape Town, South Africa.—p. 485.

Absorption from Peritoneal Cavity.—The results of experiments undertaken to compare the rates at which salts and fluids were absorbed when isotonic solutions of different substances were introduced into the peritoneal cavity are detailed by Clark. As soon as the fluid is introduced, free diffusion occurs between the fluid in the peritoneal cavity, and the blood, or the tissue fluids, and an equilibrium is reached when the peritoneal fluid contains 0.6 per cent. sodium chlorid, and a quantity of other substances, including proteins, which together produce a depression of the freezing point of about 0.2 C. This process of exchange is hastened by vasodilation and slowed by vasoconstriction. The more rapidly the solute in the peritoneal fluid diffuses, the more rapidly is this equilibrium attained, that is to say, the more rapidly is the solute absorbed. At the same time absorption of the fluid may occur, and the rate of absorption is determined by the relation between the rate of diffusion of the substances producing the osmotic pressure of the blood, and the rate of diffusion of the substances in the peritoneal fluid. When, for instance, a solution of sodium chlorid is introduced, the rate of diffusion of the chlorid is greater than the average rate of diffusion of the constituents of the blood, and a fairly rapid absorption of fluid occurs, but by the end of an hour various slowly diffusible substances have entered the peritoneal fluid from the blood stream, and absorption becomes slower. On the other hand, if a substance such as glucose is introduced, which has a very low rate of diffusion, then, since the rate of diffusion of the substance in the peritoneal fluid is lower than the rate of diffusion of the constituents of the blood, salts enter the peritoneal fluid quicker than they leave it, the osmotic pressure of the fluid rises, and little or no absorption takes place; after an hour much of the glucose has left the peritoneal cavity, but absorption still remains very slow, and the osmotic pressure is still higher than that of the blood. No attempt is made to explain the absorption of fluids which are in complete equilibrium with the blood, such as serum, but the absorption of such fluids is comparatively slow, and any absorption due to these unknown causes would be masked by the more rapid changes due to the differences in the rate of diffusion.

Absorption of Local Anesthetics from Genito-Urinary Tract.—Cocain, alypin and apothesin were studied by Macht in regard to their penetration through and absorption from various genito-urinary organs. It was found that these drugs are more or less readily absorbed through the urethra, ureters, pelvis of the kidney, praeputium and vagina. While the local anesthetics are readily and more rapidly absorbed from the urethra, they are very poorly absorbed from the urinary bladder.

Therapeutic Value of Various Brands of Arsphenamin and Neo-Arsphenamin.—Six different brands of arsphenamin, including a German preparation, which were studied by Voegtlin and Smith as to their trypanocidal activity proved to have approximately the same value. Slightly greater variations in activity were observed with six different sample of neo-arsphenamin, the maximum difference being 80 per cent. It is suggested that the alleged greater effectiveness of arsphenamin over neo-arsphenamin in the treatment of human syphilis may be attributed to the fact that arsphenamin is precipitated at the hydroxyl ion concentration of the blood, in consequence of which the rate of its oxidation and elimination from the body is considerably diminished. It was also found that sodium cacodylate does not exert any protozoicidal action even in lethal doses, and must, therefore, be considered as a quite worthless preparation for this purpose. Trivalent oxids are the only forms of arsenic which exert a direct toxic action on protoplasm. Cacodylic acid does not possess any trypanocidal action even in lethal doses. Methyl and ethyl arsenic acid show a parasitocidal action only when used in doses approaching the lethal dose.

Toxicity of Acetic and Formic Acids.—The immediate occasion for investigating these acids was the question of the safety of the use of formic acid for the preservation of foods. However, the investigation was planned with a view to possible wider applications. Sollmann found that acetic and formic acids behave approximately quantitatively alike, when added to the drinking water of rats in concentration up to 0.5 per cent. and daily doses up to 0.36 c.c. of absolute acid per kilogram of body weight, for from two to four months; this being the sole source of fluid for the animals. Concentrations of from 0.01 to 0.25 per cent., corresponding to daily dosage of 0.2 c.c. of acid per kilogram of body weight, produced no effect on growth, appetite, or consumption of fluid. They are, therefore, quite harmless. The diuresis described in the literature for formates and acetates, Sollmann believes, must be due to the sodium, potassium or lithium, and not to the formic radical. With concentrations of 0.5 per cent. and daily dosage of 0.36 c.c. of absolute acid per kilogram of rat, the appetite and growth but not the fluid consumption are materially, immediately and progressively diminished with both acids. This is evidently due to their acidity; but the experiments do not throw any light as to whether this is due to local action on digestion, or whether to some more profound disturbance of the acid-base equilibrium.

Effect of Morphin on Alkali Reserve of Blood.—A possible explanation for certain experimental therapeutic results obtained with morphin in tuberculosis was sought for by Gauss. The sulphate increased the alkali reserve in animals, but in man a therapeutic or slightly toxic dose did not have any such effect. Gauss suggests that further studies be made.

Action of Emmenagogue Oils on Uterus.—Oils of juniper, pennyroyal, rue, savin and tansy, in a 1 per cent. emulsion made in Ringer's solution, were investigated by Gunn as to their emmenagogue action. In small amounts there was no action at all; in higher concentrations, such as could never be used in the blood without producing dangerous, probably fatal, poisoning they inhibit uterine movement. Abortion after their use is held to be the result of the severe irritation and inflammation of the intestine and kidneys. On the whole, there use is dangerous as failure to secure results from small doses leads to the use of large and fatal doses.

Maine Medical Association Journal, Portland

January, 1921, **11**, No. 6

Food Poisoning; Special Reference to Botulism. J. M. Rosenau, Brookline, Mass.—p. 179.

Medical Record, New York

Jan. 29, 1921, **99**, No. 5

*Case of Multiple Myeloma with Unusual Features. V. C. Branham, New York, and N. D. C. Lewis, Washington, D. C.—p. 169.
William T. G. Morton, Discoverer and Revealer of Surgical Anesthesia, at Last in Hall of Fame; a Vindication. S. A. Knopf, New York.—p. 174.
Vertical Diplopia Lasting Eighteen Years Relieved by Operation. J. A. Kearney, New York.—p. 177.
Round Cell Sarcoma of Nasal Vestibule. G. D. Wolf, New York.—p. 178.
Types of Mammals: Notes on Hybrids, Diseases, Albinism and Other Conditions Equally Applicable to Man. R. W. Shufeldt, Washington, D. C.—p. 180.
*Cancer Death Rate in New York City During 1920. L. D. Bulkley.—p. 186.
Suggestion for Covering Yankauer Style Anesthesia Mask. S. K. Levy, Brooklyn.—p. 187.

Multiple Myeloma.—In the case cited by Branham and Lewis symptoms simulating brain tumor with pronounced unilateral exophthalmos were manifested. The true nature of the case remained unrecognized until the necropsy. The history dated back thirty-seven years when the patient was admitted to the hospital suffering from auditory hallucinations, periods of intense psychomotor activity, and a general dementia of moderate grade. This condition obtained over a period of many years, the stages of unrest becoming less frequent and less stormy and the apathetic stretches more in evidence. Irritability superseded excitement as the dementia progressed beyond the stage of active hallucinosis. His physical condition remained excellent throughout. Twenty-four years later, in 1906, the patient jumped over the stair banister and sustained a severe contusion of the right ankle and hip. This responded well to treatment and apparently no complications developed. May 2, 1916, the patient had a swollen face, some elevation of temperature, and headache. The condition was provisionally diagnosed as dental caries and a tooth was extracted. July 21, 1916, a more severe attack confined him to bed, his face being swollen to the extent that the right eye was completely closed. This attack

lasted six days. Feb. 12, 1917, a third attack of two weeks' duration occurred, in which the entire face and neck were involved. A maximum temperature of 103 F. was attained. The condition was diagnosed as erysipelas. A similar attack took place Nov. 17, 1917, more severe than its predecessors. Sept. 29, 1919, for the first time the patient complained of pain in his right leg. Examination showed enlargement of the right hip with no evidence of a tumor growth. A moderate degree of tenderness was present. Three weeks later exophthalmis of the left eyeball was noticed; although there were no signs of general intracranial pressure, a brain tumor was suspected. Impairment of vision was noted early. A well defined immovable tumor, the size of a hen's egg, over the region of the right trochanter was present by this time. The patient died, Dec. 22, 1919. Tumor growths were found in the lumbar lymph glands, the neck of the femur, left parietal bone and right ilium. Attention is directed to the element of trauma in this case.

Cancer Mortality in New York.—During 1920 there were 5,361 deaths recorded in New York City from cancer, against 5,026 in 1919, an increase of 335, or over 6.6 per cent.; whereas the general yearly increase in cancer mortality in the whole United States has commonly been between 2 and 3 per cent. From July 1 to December 31, 2,691 deaths from cancer were recorded, and only 2,669 from tuberculosis, giving an excess of twenty-two cancer deaths. The greatest number of deaths from cancer in one week was 125, in the week ending January 31, an average of almost eighteen a day. The next largest was in the week ending December 4, when there were 121, or over seventeen per day. There were twenty-eight weeks which each gave over 100 deaths from cancer. Bulkley calls the attention of medical men to the importance of studying cancer along the lines which have been repeatedly laid down.

Military Surgeon, Washington, D. C.

January, 1921, **48**, No. 1

Lecture Given at Army Sanitary School, A. E. F. F. Lemaitre, M. C., French Army.—p. 1.
Forty-Four Craniocerebral Injuries Operated on in Zone of Advance with A. E. F. A. M. Hanson, M. C., U. S. A.—p. 30.
One Year's Experience with Regimental Infirmary. F. Beekman and S. Bradbury, New York.—p. 43.
"Service of Water" in French Army. S. H. Wadhams, M. C., U. S. A.—p. 56.
Plastic Repair of Soft Tissue Injuries of Face. J. D. Whitham, M. C., U. S. A.—p. 65.
Medical History of General Zachary Taylor's Army of Occupation in Texas and Mexico, 1845-1847. L. C. Duncan, M. C., U. S. A.—p. 76.

New Jersey Medical Society Journal, Orange

January, 1921, **18**, No. 1

Problem of Venereal Disease Control. H. J. F. Wallhauser, Newark.—p. 1.
Physical Diagnosis in Obstetrics. J. F. Condon, Newark.—p. 11.
General Practitioner's Interest in Radium. C. E. Field, New York.—p. 15.

New Orleans Medical and Surgical Journal

January, 1921, **73**, No. 7

Medical Versus Surgical Treatment of Gallbladder Diseases. A. L. Levin, New Orleans.—p. 252.
Infantile Diarrhea. J. Signorelli.—p. 258.
Demonstration of Technic Followed in Determination of Basal Metabolism Rate — Indirect Method Using the Benedict Portable Unit. H. P. Jones, New Orleans.—p. 262.
Use of Quinin in Treatment of Malaria. O. W. Bethea.—p. 271.
Nut. T. J. Dimitry.—p. 275.

New York Medical Journal

Jan. 29, 1921, **113**, No. 5

Management of Breech Presentation. W. Pfeiffer, Brooklyn.—p. 177.
Treatment of Drug Addiction Disease. F. Burns, Cincinnati.—p. 179.
Rôle of Ocular Muscles. E. B. Miller, Philadelphia.—p. 181.
Fumigation Inhalation Treatment of Syphilis; Report of Cases. J. P. Burns, Philadelphia.—p. 183.
*Bronchopulmonary Spirochetosis (Castellani); Report of Two Cases. M. D. Levy, Galveston, Texas.—p. 186.
*Myotonia Atrophica; Report of Two Cases Occurring in Brothers. I. T. Broadwin, New York.—p. 190.
Fractured Skull; Report of Case Complicated by Acute Mastoiditis; Operation and Recovery. J. Friedman, Brooklyn.—p. 193.
Newer Laboratory Methods in Diagnosis and Prognosis of Diseased Kidneys. A. I. Rubenstone, Philadelphia.—p. 196.
*Renorenal Reflex; Report of Case. W. H. Haines and K. P. A. Taylor, Philadelphia.—p. 197.
Inflamed Eyes. S. A. Agatston, New York.—p. 198.
*Examination of Water from Ganges River, India. R. C. Rosenberger, Philadelphia.—p. 199.
Icterus Gravis. C. G. Cumston, Geneva, Switzerland.—p. 200.

Bronchopulmonary Spirochetosis.—Levy urges that a more careful study of the sputum of patients suffering from chronic cough be made as it may reveal other cases of bronchopulmonary spirochetosis. In view of the wide distribution of the infection as evidenced by reports the world over, it is his belief that more cases will be brought to light by more careful investigations. The close similarity of the symptoms of bronchopulmonary spirochetosis to influenza, and especially to pulmonary tuberculosis, should constantly be borne in mind, and as a conclusive differential test from tuberculosis he recommends an inoculation of the suspected sputum into a guinea-pig.

Familial Myotonia Atrophica.—The history and findings in Broadwin's two cases were almost similar. The onset of the disease with weakness occurred in both patients at about 14 years. The myotonia was noticed in the older brother at 16 and in the younger at 18; in both there was extreme wasting. They showed no muscular hypertrophies at any time. The endocrinologic features are alike in both cases; the atrophied testicles and the atypical and scanty distribution of hair. The muscular atrophies were also alike.

Renorenal Reflex.—In the case cited by Haines and Taylor the pain was limited entirely to the sound side. The diseased kidney was removed. It was about twice the normal size, and the pelvis was disproportionately dilated. The pelvis was full of small stones ranging from the size of a shot to that of a pea. Because of the doubt as to the functional capacity of the kidney, it was excised. The pathologic report was: chronic interstitial nephritis. Convalescence was rapid and uneventful. A year from the date of operation there have been no symptoms of any kind.

Bacteriology of Ganges River Water.—Two samples of water from the Ganges River, one taken from the river above the place where the natives bathe, and the other taken from the river below the bathing place were examined bacteriologically by Rosenberger. In the first specimen 150 colonies per c.c., developed but none were of the acid or gas producing type. No presumptive evidence of the colon bacillus was observed in 10 c.c. quantities. In the second specimen, 2,500 colonies developed per c.c., of which 170 were of the acid and gas producing type. This latter sample also gave presumptive evidence of the colon bacillus in 10 c.c. quantities. When plated on Endo's medium, however, no colonies resembling the colon bacillus developed. The specimens were at least eight or nine months old.

Rhode Island Medical Journal, Providence

January, 1921, **4**, No. 1

Minor Rôle of Conduction Apparatus in Slowly Progressive Deafness. F. P. Emerson, Boston.—p. 1.
Changes in Retinal Vessels and Retina in Systemic Disease. T. A. Woodruff, New London, Conn.—p. 8.

Tennessee State Medical Association Journal, Nashville

January, 1921, **13**, No. 9

Dysmenorrhea. J. J. Cullings, Memphis.—p. 321.
Physician and His Relation to Public. J. Matthews, Johnson City.—p. 327.
What Constitutes a Specialist? E. C. Ellett, Memphis.—p. 330.
Treatment of Chancroid. P. G. Morrissey, Nashville.—p. 333.
Foreign Bodies in Eye. B. F. Travis, Chattanooga.—p. 334.
Tumors of Breast. W. A. Bryan, Nashville.—p. 336.
Management of Tuberculosis and Training Tuberculous Patient in Hospital or Sanitarium. W. S. Rude, Ridgetop.—p. 339.

U. S. Naval Medical Bulletin, Washington, D. C.

January, 1921, **15**, No. 1

Special Mare Island Hospital Number.

Virginia Medical Monthly, Richmond

January, 1921, **47**, No. 10

Ocular Angiosclerosis. W. Zentmayer, Philadelphia.—p. 469.
Treatment of Certain Types of Goiter. S. McGuire, Richmond.—p. 473.
Obstetrics de Luxe. M. P. Rucker, Richmond.—p. 477.
Eclampsia and Its Conservative Treatment. J. Bear, Richmond.—p. 487.
Modified Porrocesarean Section in Presumably Infected Cases; Report of Case. V. Harrison, Richard.—p. 491.

Statistics from Over Two Thousand Clinical Cases of Obstetrics. G. Baughman, Richmond.—p. 495.
Relation of Injuries of Leg and Foot to Traumatic Flat Foot. E. E. Feild, Norfolk.—p. 498.
Moral Obligation of Medical Profession to Humanity. E. M. Mann, Kenbridge, Va.—p. 500.
Tonsillectomy a Major Operation. F. J. Morrison, Suffolk.—p. 501.

Wisconsin Medical Journal, Milwaukee

January, 1921, **19**, No. 8

Transactions of Seventy-Fourth Annual Meeting of State Medical Society of Wisconsin.—p. 383.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

October-December, 1920, **17**, Nos. 202-204

Pediatro-Mathematics; Application of Principles of Mathematics (and Physical Chemistry) to Study of Child Physiology and Pathology. W. M. Feldman.—p. 171.
Stigmata of Predisposition to Bone and Joint Tubercle. W. C. Rivers.—p. 179.
*Congenital Pulmonary Regurgitation (Transposition of Spleen). E. Cautley.—p. 187.
Surgical Tuberculosis in Infants. C. G. Cumston.—p. 189.
*Primary Sarcoma of Small Intestine. W. M. Telling.—p. 192.
Esophageal Obstruction in Young Children: Report of Five Cases. H. T. Ashby.—p. 195.
*Transmitted Congenital Syphilis. D. H. Paterson.—p. 197.

Congenital Pulmonary Regurgitation.—An abnormally large pulmonary artery and orifice was the cause of a regurgitant murmur heard in Cautley's case. The child had been short of breath since birth, and had occasionally gone blue, especially after crying. The apex of the heart was outside the nipple line in the fifth intercostal space, the right border one-half inch to the right of the sternum and the left border almost reached the anterior axillary line; dulness extended up to the second left intercostal space. The sounds at the apex were short and flapping, and a short diastolic murmur was heard in the second and third intercostal spaces to the left of the sternum. Death occurred at the age of 10 weeks. Both the right auricle and ventricle were relatively much hypertrophied and somewhat dilated, while the left auricle and ventricle were unduly small in proportion to the size of the child, and still more so in proportion to those of the right side of the heart. The pulmonary artery and orifice were much larger than normal, the orifice admitting a small little finger and measuring in diameter seven-sixteenths inch as against an aortic orifice of four-sixteenths inch. No other abnormality was found. The liver was congested and rather large. The spleen was small and congested, and situated between the right lobe of the liver and the diaphragm, together with many pealike accessory spleens.

Primary Sarcoma of Small Intestine.—Telling's patient was aged 3½ years. The history was one of intermittent attacks of abdominal colic for about 7 months. At first the attacks of colic had come on about every three or four days, and had lasted from half an hour to an hour. The pain was of some severity, causing the child to cry and to be very restless. The attacks increased in severity and duration till they were occurring daily and lasting for several hours. The child had always had constipation which had not been unusually worse since the colic had been present, as it was easily controlled by simple aperients. No blood had ever been noted in the stools. The boy was healthy looking and had not lost much in weight. His doctor had noted a sausage-shaped tumor during some of the attacks. This disappeared in the intervals when he would be perfectly well and cheerful. Telling made a diagnosis of tumor, probably polypoid, pedunculated and nonmalignant, projecting into the small intestine at some distance from its fixed ends, and by some degree of mobility within the lumen causing recurrent partial obstruction, with spasm of the intestine immediately proximal to the lesion. The diagnosis of tumor was verified at operation but it was malignant, a spindle-shaped sarcoma.

Transmitted Congenital Syphilis.—Paterson records a case which he believes proves beyond a doubt that congenital syphilis may be transmitted from mother to child, a fact that is not generally admitted. The patient was a child, aged 2½ years. The complaint was that he was backward. He had the characteristic facies of congential syphilis and seemed a very mentally deficient child. His Wassermann reaction was positive. His mother showed the very characteristic features of congenital syphilis, and her Wassermann reaction was 4 plus. She had suffered as a child with interstitial keratitis and showed faint traces of the affection on examination. She had a depressed bridge to her nose and well marked external strabismus. The mother's mother, or the maternal grandmother, died of locomotor ataxia. Apparently, then, the disease has been transmitted from the maternal grandmother to her daughter, who has given birth to a syphilitic child.

British Journal of Psychology, London

Medical Section, October, 1920, **1**, Part 1

Psychologic Tension; Its Degrees and Oscillations. P. Janet.—p. 1.
*Revival of Emotional Memories and Its Therapeutic Value. W. Brown.—p. 16.
*Id. C. S. Myers.—p. 20.
*Id. W. McDougall.—p. 23.
Id. W. Brown.—p. 30.
Psychologic Adaptation. C. Long.—p. 34.
Recent Advances in Psycho-analysis. E. Jones.—p. 49.
Pathogenesis of Epilepsy; Survey of Clinical Studies of Pierce Clark. C. S. Read.—p. 72.

Therapeutic Value of Revival of Emotional Memories.—Brown is convinced of the great therapeutic effect produced by the intellect in the analytic review of past memories, especially in the analytic treatment of what has been called anxiety states where the patient is helped and encouraged to look at past events from a more impersonal point of view and so to obtain a deeper insight into their mutual relations and intrinsic values. The method, for which Brown suggests the term "autognosis," produces a readjustment of emotional values among the patient's past memories and they are scrutinized from the point of view of the patient's developed personality—or rather of his ideal of personality so far as it becomes revealed in the course of the analysis—and the relative autonomy which some of them enjoyed previously by virtue of their emotional overemphasis is withdrawn from them.

Myers is of the opinion that the value of autognosis consists in relieving the effective-cognitive repression and in redintegrating the various dissociated components, not in securing emotional revival. He doubts whether attempted control over emotional expression ever leads directly to functional nervous disorder, and whether dissociation of emotion or emotional expression ever occurs, save indirectly through dissociation and repression of the cognitive and effective experiences linked thereto.

McDougall asks: If living through a scene of horror produces a psychoneurotic disorder, why should the living through it a second time cure or tend to cure it? He does not believe that the revival of the emotion, the relieving of the emotional experience in itself results in relief, but agrees with the statement that in all cases in which some relief follows there is also some recovery from some amnesia, paralysis or other manifestation of dissociation.

British Medical Journal, London

Jan. 15, 1921, **1**, No. 3133

Part of Practitioner in Treatment of Pre-Operative Stage of Enlarged Prostate. J. W. T. Walker.—p. 71.
Teaching and Study of Human Anatomy. R. J. A. Berry.—p. 75.
*Use of Antigonococcal Serum. F. Ivens.—p. 77.
Albuminuria in Relation to Life Assurance. E. P. Weber.—p. 78.
Action of Certain Special Preparations on Malarial Parasites and Their Employment in the Treatment of Malaria. J. P. Johnson, K. Gilchrist and Hay-Michel.—p. 80.

Use of Antigonococcus Serum.—Ivens reports the results of his experience with antigonococcus serum in the treatment of gonorrhea in women. He administered the serum subcutaneously, intraperitoneally and in a few cases of endocervicitis with profuse leukorrhea he tried serum packs in the vagina. All the patients made a good immediate recovery. There have been three definite failures—one an acute case, where an insufficient quantity of serum was perhaps responsible, and two which relapsed after a period of some months' good health, and where was every possibility of reinfection. Further treatment had to be taken in all three cases; otherwise the results have been good.

Glasgow Medical Journal

January, 1921, **95**, No. 1

Medical Education, Legislation and Practice in United States. N. Walker.—p. 1.
*Epidemic Encephalitis in Childhood: Special Reference to Changes in Cerebrospinal Fluid. L. Findley and C. Shiskin.—p. 18.
Effects of Factors Producing Shell Shock. C. G. A. Chislett.—p. 51.

Epidemic Encephalitis in Childhood.—The cerebrospinal fluid was carefully and systematically examined by Findlay and Shiskin in twenty-three cases. The findings with regard to the cell content, the sugar content, and bacterial infection were similar to those obtained by other workers. The colloidal gold test was performed in twenty-one cases, and in seventeen of these the cerebrospinal fluid behaved differently from the normal. They behaved in the same manner as syphilitic fluids, causing precipitation in the tubes of low dilution. In two cases the precipitation was as complete as occurs typically in general paralysis of the insane, and to eliminate syphilis as the etiologic factor the Wassermann reaction was performed—but always with negative results. Sometimes the colloidal gold test was positive in the early stage of the disease, but in a few cases it did not appear for some considerable time afterward. Excess of globulin was searched for in nine cases and only found in seven, all of which gave a positive reaction with the colloidal gold solution, while in two a negative result was obtained both as regards excess of globulin and gold precipitation. The globulin was never so abundant as in the fluids from cases of meningitis. The fact that in encephalitis the reaction was of the spirochetal type suggested to the authors the possibility that the virus in epidemic encephalitis is of the nature of a spirochete, or at least some organism of a higher form of life than a bacterium. They have attempted to follow this line of research by endeavoring to activate normal cerebrospinal fluids with dead cultures of spirochetes and also emulsions of congenital syphilitic livers, but so far without any result. As further suggesting a spirochetal infection in this disease is the characteristic night restlessness. The night restlessness and change in disposition, the authors state, should be placed alongside of the lethargy in importance. Choreiform and myoclonic movements are not typical, but when occurring in association with the other features are not to be neglected in helping toward a diagnosis. And, finally, there is the condition of the cerebrospinal fluid—clear, scanty cellular contents, positive Fehling's test, excess of globulin, and especially the definite precipitation of the gold in the colloidal gold test in the syphilitic zone, with a negative Wassermann reaction. Of twenty-four cases observed this year by Findlay and Shiskin, only three ended fatally. A postmortem examination was performed in two cases. In both the brain showed to the naked eye marked generalized congestion, and in one a slight superficial hemorrhagic area. The cortex cerebri alone was examined histologically. The pathologist stated that he could not find any characteristic changes.

Journal of State Medicine, London

January, 1921, **29**, No. 1

Prevention of Venereal Disease. A. M. Frazier.—p. 17.
Part of Naval Medical Officer in Campaign Against Venereal Disease. D. McNabb.—p. 6.
Prevention of Venereal Disease in Royal Navy. P. H. Boyden.—p. 13.
Prevention of Venereal Disease. A. M. Frazier.—p. 117.

Journal of Tropical Medicine and Hygiene, London

Jan. 1, 1921, **24**, No. 1

Recent Cholera Epidemic in Bangkok, Siam. R. W. Mendelson and R. J. Tait.—p. 1.
Differential Diagnosis of Malarial Parasites in Thick Blood Smears. J. Pratt-Johnson.—p. 6.

Lancet, London

Jan. 15, 1921, **1**, No. 3

*Malaria. J. P. Johnson and K. Gilchrist.—p. 107.
Three Cases of Influenzal Pneumonia with Septicemia and Extensive Membranous Colitis. E. C. Lowe.—p. 112.
Amputations: Effect of War Knowledge on Teaching, Practice and After Care. E. M. Corner.—p. 114.
Adolescent Albuminuria in Relation to Life Assurance. R. H. Fox.—p. 116.
*Postoperative Mortality of Appendicitis. H. H. Brown and H. M. Cade.—p. 118.
*Two Unusual Cases of Small Intestine Obstruction. W. H. Ogilvie.—p. 120.
Psychotherapy in General Practice. W. T. Brown.—p. 121.
*Case of Leukemic Polyneuritis. W. Harris.—p. 122.
*Case of Ophthalmia Neonatorum Before Birth. G. H. G. Dundas.—p. 122.
*Case of Amebic Dysentery in a Boy Aged three. M. L. Young.—p. 122.

Malaria.—These investigations were carried out during the war on cases of malaria returned from the German East African campaign and admitted for treatment into military hospitals in South Africa. They show that mixed infections are more resistant to treatment than either benign tertian or malignant subtertian; benign tertian is as resistant or even more resistant than malignant subtertian. The prolonged treatment required in mixed infection is due partly to the resistance of these infections to the action of quinin, and partly to the frequency with which relapses of either one or the other (usually benign tertian) infection takes place. The resistance of malarial infections, even when involving one type only of malaria, in syphilitic subjects is very marked. Relapses are frequent and the anemia is severe. The chronicity of malaria in syphilitic subjects, in spite of thorough antisyphilitic and of antimalarial treatment, emphasizes the importance of the natural protective mechanism of the body in combating malaria and in rendering effective the administration of quinin. The most intractable type of malaria from the point of view of control and prevention of relapses is a mixed infection of benign tertian and malignant subtertian. Moreover, the chances of relapse are more than twice as great in benign tertian than in malignant subtertian. Quinin is undoubtedly the most valuable single remedy at present known, but its repeated failure to eradicate malaria, even when exhibited in doses and amounts limited only by the toxicity of this drug, indicates that unless it is aided by the natural protective mechanism of the body frequent relapses and long-continued illness occur. Johnson and Gilchrist suggest the possibility that the action of quinin in malaria is analogous to the action of opsonins on bacteria in infected tissues. The crescent is a form of the malignant subtertian parasite particularly resistant to the action of drugs. The eradication of crescents is secured by control of asexual generation by quininization. The same is true of the sexual forms of the benign tertian parasite.

Bacteriology of Appendicitis.—In a case of acute appendicitis in which only a small quantity of pus was present in the appendix Brown and Cade succeeded in culturing *Streptococcus faecalis* from the blood.

Small Intestine Obstruction.—In one of Ogilvie's cases there was strangulation by a band, with absence of any of the usual symptoms of intestinal obstruction. The band was situated at the pelvic brim, passing from right to left. Several coils of intestine were matted together and surrounded a loop of the lower ileum about 5 inches long, which was gangrenous and greenish-yellow in color. In the second case a reduction "en masse" of an inguinal hernia had been made. Strangulation in the reduced sac occurred six months later.

Leukemic Polyneuritis.—The case described by Harris illustrates symmetrical polyneuritis as an early and prominent symptom in a case of lymphatic leukemia, before the definite diagnosis of the blood condition was possible to establish.

Ophthalmia Neonatorum Before Birth.—Five minutes after birth of a baby Dundas noted that it had ophthalmia neonatorum. The lids were red and edematous, and pus was discharging from both eyes. The case was evidently one of intra-uterine infection made possible by the draining away of the liquor amnii, and presumably the presentation had been a brow converted into an occipital during labor. The child died on the tenth day. On removing the calvarium, extreme intracranial congestion was found. The sinuses were full of fluid blood, and injection of the pia mater was intense. When the brain was removed a purulent exudate was found on the middle of the base of the skull extending from the optic commissure backward. There was no disintegration of the globe of either eye. The secondary condition was evidently due to infection by blood or lymph stream.

Amebic Dysentery in Young Boy.—The absence of any obvious source of infection was a noteworthy feature in Young's case, as well as the youth of the patient.

South Africa Medical Journal, Johannesburg

October, 1920, **10**, No. 3

Cyst of Pituitary, Internasal Sillar Decompression (Killian-Hirsch Operation). J. C. G. Macnab.—p. 46.
Use of Trephine in Surgical Treatment of Glaucoma. A. T. Thurston. —p. 49.

South African Medical Record, Cape Town

Dec. 24, 1920, **18**, No. 24

Retrospect of Four Thousand Obstetric Cases. G. P. Mathew.—p. 471.
Localization of Surgical Urinary Disease. A. Radford.—p. 476.
Stages of Miners' Phthisis.—p. 480.

Annales de Médecine, Paris

October, 1920, **8**, No. 4

*Therapeutic Pneumothorax. E. Rist and A. Strohl.—p. 233.
*Circumscribed Edema. P. Mauriac.—p. 271.
*Electric Tests for Tetany in Adults. F. Naville.—p. 280.
*Anti-Anaphylaxis. W. Kopaczewski.—p. 291.
*Digestive Anti-Anaphylaxis. P. Pagniez and P. Vallery-Radot.—p. 303.

Artificial Pneumothorax.—This experimental and critical study of pneumothorax is devoted principally to research on the absorption of gases in the pneumothorax and the balance between the gases. They diffuse through the pleural membrane until a balance is established, and this balance between the gases of the pneumothorax and the gases of the venous blood once established, persists indefinitely without change. When pure nitrogen or atmospheric air is insufflated, there follows at once a period during which the total amount of the gas in the pneumothorax is increased before this balance is established. This interval is short, but it explains the sensations of oppression sometimes observed before the interchange of gases has resulted in a balance. These physical phenomena explain many of the peculiar experiences that have been noted with therapeutic pneumothorax. One unexpected result of the research is the discovery that the proportion of oxygen in the venous blood is higher than has been realized hitherto.

Cause and Cure of Circumscribed Edema.—In Mauriac's case amenorrhea had developed suddenly in the woman of 38 and after that there had been occasional pains in the hands and one knee, suggesting subacute rheumatism. At the eighth year the hands swelled, the edema limited to the hands and forearms and finally becoming so severe that she was unable to continue her work as a dressmaker. Different measures, even thyroid treatment, were tried by different physicians, but all without benefit. At the end of the second year of this circumscribed edema, a turpentine fixation abscess was induced, and in a few days the edema disappeared and menstruation returned after a pause of eleven years, and was regular during the following nine months. By this time the woman was nearly 50. The fixation abscess seemed to act as if it removed some obstacle to the circulation of lymph. But the initial cause still persists; this may be relative insufficiency of the ovaries. The case indicates some close connection between the ovarian function and the edema.

Diagnosis of Tetany in Adults.—Naville states that the responses to electric tests applied to the right ulnar nerve reveal a tendency to tetany even when it is quite latent. The responses are absolutely characteristic and constant when there is any tendency to tetany. He tabulates the findings in twelve adults with pronounced tetany, in twelve with a dubious diagnosis, and in twenty with other diseases but free from tetany. The threshold for the closing of the current, the negative pole at the nerve, was always below 1 milliampere, and below 2 with the positive pole; below 5 with the threshold of tetanus with the negative pole, and below 10 with the same with the positive pole. In the absence of tetany these figures are always above these thresholds. The COCl threshold (5) and the CCTe threshold (5) are the pathognomonic figures. The experiences related testify to the unexpected prevalence of tetany with endocrine malfunction (thyroid, myxedema, dwarf growth, exophthalmic goiter). Nothing was found to confirm the assumption that lack of calcium is a factor in tetany in man.

Antianaphylaxis.—Kopaczewski reviews the whole field of the efforts to avert and cure anaphylactic shock, and shows that the widely diverse substances which have proved useful in this line all have one of two traits in common. They either prevent flaking in the blood serum or they dilate the blood vessels. All his extensive research tends to prove that the anaphylactic shock is the result of physical changes in the blood serum which permit flocculation of the molecules. Dark ground illumination has shown in the microscope the flaking in the blood serum in contact with certain colloids. The superficial tension of the serum of animals that have died from anaphylactic shock is found much reduced, a phenomenon which always accompanies colloidal flocculation. The capillary embolism found in the lungs of such animals testifies further to the flocculation. He explains that the introduction into the serum of a normal animal of one of a group of colloidal substances upsets the colloidal balance, and there is flocculation of the molecules. The flakes thus formed obstruct the capillary network, and thus induce fulminating asphyxia. Prophylaxis and treatment call for measures to reduce the superficial tension of the blood serum (saponin, soaps, bile salts, anesthetics, hypnotics, lecithin, etc.), or to render the serum more viscous (sugars, glycerin, acacia, carbonates, alkalis, etc.), or to dilate the blood vessels to allow the passage of the flaked micella (calcium lactate, atropin, etc.). No facts have been discovered yet, he declares, which conflict with this physical conception of anaphylaxis and antianaphylaxis. The serum of an anesthetized animal, for instance, has the superficial tension reduced by about 10 dynes, and Nicloux has reported the finding of a considerable amount of the anesthetic in the blood. Kopaczewski injected into the blood of animals a corresponding amount of an anesthetic. The blood thus contained as much of the anesthetic as in an anesthetized animal, although the animal did not show signs of anesthesia. But the animal was protected against anaphylactic shock as had been the theoretical surmise. This physical theory of anaphylaxis points the way, he says in conclusion, for suppression of the phenomena of shock in various pathologic conditions connected with anaphylaxis (asthma, urticaria, paroxysmal hemoglobinuria, diathesis, eclampsia, etc.) and indicates the substances to be used for preventing flocculation of the micella, that is, of the ultimate molecular masses of protoplasm in the blood serum.

Digestive Antianaphylaxis.—The experiences of Pagniez and Vallery-Radot with a preliminary ingestion of peptone to ward off alimentary anaphylaxis have been repeatedly described in these columns, as for instance, June 19, 1920, p. 1746. They describe here a number of instructive cases of intolerance of eggs, shellfish, etc., as also of alleged idiosyncrasy to some drug. The symptoms of anaphylaxis took the form of circumscribed transient edema, urticaria, migraine, or asthma. A small amount of the harmful food may be taken an hour before the meal or a tablet of 0.4 or 0.5 gm. of peptone. The peptone seems to be polyvalent for most of the articles causing the anaphylaxis. Some require the continuous use of the peptone, others do better when it is given for three to eight days followed by an interval of the same length. By this means they have succeeded in curing the tendency in time in many cases, the time required for complete desensitization depending however on the personal equation.

Bulletin Médical, Paris

Nov. 17, 1920, **34**, No. 54

*Venous Thrombosis. P. E. Weil and M. Bloch.—p. 1025.
Operation for Talipes Equinus in Little's Disease. T. Asteriadés.—p. 1026.

Venous Thrombosis in Chronic Hemorrhagic Conditions.—Weil and Bloch describe three cases of venous thrombosis resulting from some general derangement of the endothelium of the vessels. This insufficiency of the endothelium is probably the cause of the spontaneous or exertion thrombosis of which instances have been reported by surgeons and obstetricians. Heredity, induced purpura, hemorrhagic antecedents, and signs of abnormal composition of the blood should be sought for.

Dec. 11, 1920, **34**, No. 59

*Marriage of Syphilitics. Queyrat, Hudelo, Spillmann, Gastou and C. Simon.—p. 1101.
Present Status of Prostatectomy. R. Le Fur.—p. 1107.

Dec. 15, 1920, **34**, No. 60

Infantile Mortality. J. Renault.—p. 1127.
Iridectomy for Glaucoma. A. Cantonnet.—p. 1129.

Dec. 18, 1920, **34**, No. 61

Training Visiting Nurses for the Tuberculous. XVIII. G. Kuss.—p. 1141.

Marriage of Syphilitics.—This is the long report of a commission appointed by the Société française de Dermatologie et de Syphiligraphie to decide the date when consent can be given for the marriage of a syphilitic. The final summary states, "Our conclusions are only provisional as the subject, like many others in biology and especially in medicine, cannot be considered from the standpoint of pure science. We have no certain criterion of the cure of syphilis. However, we have not the right to prevent syphilitics from marrying. If we are too severe, they will lose the habit of consulting us. Our part, and it is a fine one, is to enable syphilitics by systematic treatment and medical discussion of their clinical and biologic balance-sheet to fill a normal rôle in the family and society."

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 3, 1920, **44**, No. 37

Tuberculosis and Pregnancy. Rist, Rolland and Ravina.—p. 1455.
*Meningococcus Urethritis. J. Dumont and Baron.—p. 1460.
Syphilitic Chorioretinitis Beginning at 21; Morvan's Disease at 45. F. Terrien.—p. 1463.
Suggestions for Artificial Limbs. G. Bidou.—p. 1465.
*Gangrene of Pharynx. Armand-Delille, Marie and Dujarier.—p. 1468.
*Case of Botulism. P. L. Marie.—p. 1471.
*Daily Subcutaneous Injections of Neo-Arsphenamin. J. Minet.—p. 1475.
Necropsy Findings in Nerve Centers in Familial External Ophthalmoplegia. Crouzon, Trétiakoff and Béhague.—p. 1479.
*Epidemic Hiccup. J.-A. Sicard and J. Paraf.—p. 1484.
*Nerve Centers in Epidemic Encephalitis. Harvier and Levaditi.—p. 1487.
*Hemolytic Jaundice in Helminthiasis. H. Bourges.—p. 1491.

Meningococcus Urethritis.—The urethritis developed in the course of grave epidemic meningitis and it was followed by orchitis, but both subsided under antimeningococcus serotherapy.

Gangrene of Pharynx.—The gangrene was of fusospirillar origin, complicating diphtheria, in a girl of 10. The diphtheria yielded to antitoxin and the gangrene to an intravenous injection of neo-arsphenamin. Antigangrene serum was also used, but the recovery is ascribed to the arsenical, as the benefit from this was prompt and decided.

Case of Botulism.—The patient was a physician, and presented the classic picture of botulism after the usual latent period of ten hours. The neuroparalytic symptoms persisted for six weeks but there was no fever. The blood pressure dropped remarkably low and had not returned to normal by the end of six weeks.

Daily Injections of Arsphenamin.—Minet reports favorable experiences with small, daily subcutaneous injections of neo-arsphenamin in treatment of syphilis. This allows incorporation of a much larger total amount than possible by the vein, and avoids all the dangers of the latter. After extensive tests he finally settled on a 4.7 per cent. solution of glucose for the vehicle, adding a little phenol. With this vehicle there is no persisting hardening or prolonged pain. Several patients were given fifteen of these daily injections, all in a space no larger than a silver dollar, without any complaints from them. He uses the minimum of vehicle, and says that the total effect of the course of treatment surprised not only himself but every one who witnessed it. Mal perforans was cured in two weeks in one case under a total of 2.5 gm. of neo-arsphenamin, and in another case it has almost healed under 4.75 gm. in two series of fifteen injections. He reports a number of cases in which the results far surpassed those realized with other technics. He gives mercurial treatment at the same time, with iodid during the intervals.

Epidemic Hiccup.—Subject discussed editorially, p. 249.

Lethargic Encephalitis.—The disease entailed cachexia with death after six months, and the nerve centers even at this late period induced fatal encephalitis in rabbits.

Hemolytic Jaundice in Helminthiasis.—The hemolytic jaundice and anemia subsided in the young man after expulsion of twenty-nine ascarids under santonin. Bourges does not hesitate to ascribe the clinical picture to the destructive action on the erythrocytes of the toxins generated by the ascarids. Their excreta are irritating in themselves, and resorption of the fat acids, aldehyds, etc., from the excreta have a toxic action on the nervous system as well.

Gynécologie et Obstétrique, Paris

1920, **2**, No. 4

*Gestation After Cesarean Section. A. Couvelaire.—p. 225.
*Suture of the Ureter. R. Gouverneur.—p. 231.
*Survival of Fetus After Cessation of Pulsation in Cord. S. E. Bermann (Buenos Aires).—p. 247.
Senile Genital Prolapse. E. Douay.—p. 258.

Pregnancy After Cesarean Section.—Couvelaire tabulates the obstetric history of 41 women after section of the body of the uterus who passed through one or more pregnancies later—a total of fifty consecutive pregnancies, one woman having four, one three and 5 women two pregnancies after the first cesarean section. The wall was found very thin in 4 of the 41 uteri, and it ruptured in 2 cases. Rupture is more liable during the last three months of gestation, and especially at the onset of labor. It was found necessary to remove the uterus at the second delivery in 15 of the first group of 21, but only in 7 of the 20 latest cases, which testifies to the improvement in technic. All but 8 of the consecutive pregnancies were carried to normal term.

Suture of the Ureter.—Gouverneur says that end-to-end suture of the ureter, with invagination, after it has been severed gives good immediate results, but the final outcome is usually deplorable; stenosis and adhesions shut off the kidney eventually. If possible, the central stump should be implanted in the bladder. He reviews the literature on the subject since 1900, and reports the results of considerable personal experimental research.

Survival of Fetus After Cord No Longer Pulsates.—Bermann reports a case in which there was no pulsation perceptible to the finger in the prolapsed cord, and yet the child was living when delivered, and he cites six similar cases from the experience of other obstetricians. He reviews also the literature on the subject, including the survival of the fetus after the heart sounds can no longer be heard. It is evident that the circulation between the fetus and the placenta may persist although imperceptible to our senses; the circulation may be arrested but the fetal heart may continue to beat. There is also the possibility that the fetal heart may be temporarily arrested in a kind of syncope, and then begin to beat again. He has had such a case in an adult; the man's heart stopped beating for twenty seconds while Bermann was incising an abscess on the left thumb. Bermann supposed the man was dead, but then the heart began to beat again. Lévy-Solal and his co-workers have recently published two similar cases. In one the massage of the heart was begun an hour after the respiration of the boy of 7 had stopped, three quarters of an hour after the heart had ceased beating. The heart began to beat anew after fifteen minutes of massage, but the child died forty-eight hours later. If massage had been applied earlier, they think he might have been saved. New-born infants can sometimes be resuscitated by prolonged artificial respiration when the heart sounds have not been audible for some time. A syncope in the uterus would be less dangerous than after birth, as the organic changes seem slower, and there is no danger of chilling. Bermann's conclusions from these and other experiences related justify the conclusion that the lack of pulsation in the prolapsed cord, even when no sounds are to be heard from the fetal heart, does not testify to the death of the fetus. In such a case, if it is possible to introduce the finger into the uterus, the finger may perceive the beat in the precordial region of the fetus. When this is not possible, embryotomy should not be applied until fully an hour has elapsed since any sign of life. The probability of survival is greatest, of course, when extraction follows at once, with the usual measures for resuscitation, including massage of the heart. He cites Balard's case in which a fetal hand protruded beside the pulseless cord. He was about to do embryotomy when the mother insisted on having the child baptized. Cold water was poured on the hand for this purpose, and the hand contracted. The child was at once delivered and was easily revived.

Journal de Chirurgie, Paris

1921, **17**, No. 1

*Ulcer in Middle Portion of Stomach. P. Lecène.—p. 1.
*Avulsion of the Scalp. C. Lenormant.—p. 9.

Remote Results of Resection of Middle Portion of Stomach for Ulcer.—Lecène describes his technic and the present condition of five patients whose operation dates from 1910 to 1914. All are well and in good condition, three have never had any symptoms since from the stomach. One had at the sixth year a week of pains in the stomach which yielded to dieting, and there has been no disturbance since. The fifth had a slight bleeding from the stomach at the fifth year, but it has never returned. All have increased in weight and eat ordinary food without restrictions. Radioscopy shows the stomach of practically normal outline. The ulcer was of the hard boring type in some, and there were two ulcers in two cases, but no signs of cancer in any.

Avulsion of the Scalp.—Lenormant analyzes thirteen cases of partial scalping and sixty-seven of total avulsion of the scalp, including one case treated in his own service. In the latter case the scalp had been torn off by machinery from the eyebrows to below the ears; at the back only a narrow strip of hair was left. A year later the vast wound, covered with young cells, was still suppurating a little, and the healing process did not seem to be making progress. The woman of 50 complained of the cold in the scalped region, and the nineteenth month the region was covered with Thiersch flaps taken from the thigh; all healed in place. He knows of only one case of speedy death at once after the avulsion, but the conditions for healing of the raw area are very poor, and infectious complications are difficult to ward off. Five cases are on record in which the patients died from septicemia from two to thirty months after the accident. Spontaneous cicatrization very seldom occurred, and then only after years of suppuration. The cicatricial tissue is very thin and fragile. Syme's patient had some suppurating points eight years afterward, and others', from two to seven years. With only partial avulsion, the flap still connected with the rest of the scalp, every effort should be made to save the flap, suturing it in its place. But with total scalping it is futile to attempt this, as the scalp flap is nourished only around its periphery and this would require suturing the vessels. Ollier-Thiersch flaps were applied in four of the cases and the results were brilliant in some and good in all, so that this must be regarded as the proper method of treatment. The experiences to date indicate that this method should be applied early, waiting only for a few days after the trauma. Some recommend to freshen the granulating surface with the curet or razor, but Lenormant merely rubbed the young cells with a compress dipped in hot serum, and none of his flaps were cast off. The dermo-epidermic flaps "take" perfectly well on bare bone; it is not necessary to trephine to perforate the bone as Flaherty did. Gerok and Riegner covered the whole expanse at one sitting, others in two or three sittings. Lenormant advocates cutting large flaps, fully 3 or 4 cm. wide and from 10 to 15 cm. long, covering the entire surface, placing the flaps close to each other or even overlapping. He regards this as the secret of success with Thiersch flaps. The flaps should always be taken from the patient herself. The healing was complete in one month in Gerok's case, but in others from three, five to fifteen months were required. In Cotte's and in Ombrédanne's cases none of the flaps healed permanently in place by any of the various technics tried, and the cases had to be left to heal spontaneously.

Nourrisson, Paris

January, 1921, **9**, No. 1

*Insufficient Nutrition of Infants. A. B. Marfan.—p. 1.
*Fat Diarrhea in Infants. P. Woringer.—p. 18.
*Anemia with Splenomegaly in Infants. G. L. Hallez.—p. 24.

Hypothrepsia and Athrepsia.—Marfan recalls that growth is more active in comparison in the young infant than at any other period of life; the consumption of calories is nearly three times that of the adult per kilogram, and waste is thrown off in proportion. The smaller the infant, the greater its radiating surface in proporation to its weight, so that to keep its body at normal temperature it has to oxidize more substance per kilogram than the adult. When nutrition is insufficient, the child ceases to increase in weight; its adipose tissue disappears; there is autophagia of proteic elements, loss of water and of mineral substances, and this hypothrepsia may progress to incurable athrepsia. The causes may be from defective feeding, pathologic conditions in the digestive tract, or from infectious conditions, their action supplemented by inherited taints, unhygienic environment, and the lack of the stimulating action from the mother's smile and notice and crooning. Even in adults, the appetite wanes in dreary surroundings. The hypothrepsia of the infant may be the only sign of inherited syphilis. Extremes of temperature favor it, as also the environment in an asylum or other institution. But, he adds, hypothrepsia does not entail athrepsia, the incurable degree of denutrition, in the breast fed. In the artificially fed, the hypothrepsia may progress to athrepsia even after the primary digestive disturbance has subsided. The insignificance of the initial digestive disturbance in proportion to the final degree of denutrition has often been commented on.

Fat Diarrhea in an Infant.—Woringer's tests in the case described show that the steatorrhea could not be attributed to deficiency of digestive juices. The only explanation seems to be defective absorption from the bowel mucosa. The peristalsis was not exaggerated. The case should be classified as dyspepsia of fats.

Anemia with Enlargement of the Spleen.—Hallez' article is based on two cases personally observed, and 124 from the records. He refers to some experimental research in which this pseudoleukemic anemia was reproduced in young animals by different means, cholera toxins, typhoid toxins, lead, extracts of stools of children with severe dyspepsia, etc. The clinical aspect of the condition is well known but the immediate cause is still a mystery. It may subside spontaneously or under treatment for syphilis, malaria, or other suspected factor. Fresh or desiccated bone marrow has been successfully used by Combe, Marfan and others, and transfusion of blood might be considered in grave cases. Petrone and Zamboni have also reported success from exposure of the region of the spleen to the roentgen rays for thirty minutes at a time at ten or twelve days intervals. General hygiene, with iron and arsenic may also prove useful. The outlook, he adds in conclusion, judging from the literature, should encourage us to neglect nothing in treatment of this very grave condition which yet is susceptible of a cure.

Paris Médical

Dec. 18, 1920, **10**, No. 51

*Scientific Nutrition. G. Mouriquand.—p. 449.
Diagnosis of Bubonic Plague. E. Joltrain.—p. 459.

Scientific Nutrition.—Mouriquand discusses the latest views on alimentary deficiency, especially in infants, but he adds that adults are liable to suffer from it also when they keep up for too long some special diet ordered for some transient condition. These adults suffer from asthenia and are pale, and no tonics restore their strength. They may be thin or not, but they present intestinal disturbances, particularly diarrhea which is so frequent in animals on a deficiency diet. Loss of appetite or a morbid appetite, and signs of neurasthenia render life miserable but all is changed by modifying the diet from rice or starchy articles, etc., to an ordinary diet, increasing quantity as well as quality. In short, he concludes, the modern views on alimentation are a return to the traditions of good old French cooking, with variety in the strictest diets, especially when prolonged.

Dec. 25, 1920, **10**, No. 52

*Uremia in Acute Infections. P. Merklen.—p. 465.
*Glycuronic Diabetes. G. Weber.—p. 472.
*The Alleged Reserves of Vitamins. A. Lumière.—p. 474.

Uremia in Acute Infections.—Merklen cites writers who regard the urea content of the blood in acute infectious diseases, even in infants, as an indispensable element for the prognosis, as a progressive increase in the azotemia reflects the destruction of protein. To be truly instructive, however, he says, the urea content of the urine should be determined at the same time, taking into account also the diuresis by day and by night.

Glycuronic Diabetes.—Weber relates that a woman of 50 applied for relief from vulvar pruritus so intense that she was contemplating suicide. The urine contained 110 gm. sugar; no albumin. Under a course of Guelpa treatment the pruritus subsided but returned later on resumption of a rich diet, and examination of the urine in four different laboratories confirmed the presence of glycuronic acid in the proportion of 42.23 gm. per liter, with 2.07 gm. glucose. At the first examination the glycuronic acid had not been recognized, and Weber thinks that this may have been the case in other instances of diabetes. He queries whether the vulvar pruritus was traceable to this glycuronic acid.

Reserves of Vitamins in the Organism.—Lumière presents arguments against the assumption of reserves of vitamins, and in favor of his view that the vitamins act by stimulating the digestive glands. When deprived of vitamins, the digestive glands cease to function more or less completely. They may continue to function for a little time—which has erroneously led to assumption of reserves of vitamins. The prompt recuperation when vitamins are resupplied after the deficiency disease has developed, is further testimony to their stimulating action on the digestive glands as the latter start at once to function anew. No other explanation fits with the promptness of this recuperation. One of his arguments refers to the special task of the cerebellum in birds as controlling orientation in flight. This special development of the cerebellum requires an extra amount of nourishment for it. When the nourishment is shut off by lack of vitamins, the cerebellum suffers first and foremost from this lack of nourishment, so that the cerebellar symptoms are the first and predominant ones to appear.

Presse Médicale, Paris

Dec. 25, 1920, **28**, No. 95

Centenary of the Académie de Médecine. Addresses by Laveran, A. Honnorat, H. Vaillard, A. Chauffard, L. Camus, E. Delorme, G. Meillère and A. Hanriot. Conc'n in No. 1, p. 1.

Jan. 5, 1921, **29**, No. 2

Opening Lecture on Bone and Joint Tuberculosis. E. Sorrel.—p. 13.
*The Blood Pressure in Angina Pectoris. R. Lutembacher.—p. 16.

Rapid Drop in Blood Pressure in Angina Pectoris.—Lutembacher discusses the mechanism of this phenomenon. In all the instances he has observed, prolonged exposure to dampness and cold had preceded the intense substernal pain, which keeps up with possibly a few brief intermissions. After a few hours the systolic pressure drops, and death soon follows.

Jan. 8, 1921, **29**, No. 3

Opening Lecture of Therapeutics Course. M. Labbé.—p. 21.
Sodium Cacodylate in Large Doses. L. Cheinisse.—p. 27.

Progrès Médical, Paris

Dec. 4, 1920, **35**, No. 49

*Meningococcus C. Meningitis with Arthritis. R. J. Weissenbach and L. Merle.—p. 527.
Examination of a Gastric Ulcer Patient. Delbet.—p. 528.
Indecency from Medicolegal Standpoint. Balthazard.—p. 531.
*Duration of Pregnancy. R. Labouré.—p. 533.

Meningitis with Arthritis.—Weissenbach and Merle report the case of a young woman with acute meningitis who developed arthritis in her wrists and one shoulder. The features of the arthritis closely resembled those of gonococcus joint disease tending to ankylosis. Serotherapy proved promptly effectual against the meningitis but did not modify the arthritis. The joint lesions subsided under massage, as with gonococcus arthritis.

Duration of Gestation.—Labouré suggests that instead of an arbitrary month, we should calculate the duration of a pregnancy by the woman's own ovarian cycle, that is, ten times twenty-seven days or ten times thirty days as the case may be.

Dec. 11, 1920, **35**, No. 50

Lipomas in the Intestines. A. Bréchot.—p. 539.
*Diet with Gastropathies. M. Loeper.—p. 540.
Necessity for Saving the Menstrual Function. F. Hidden.—p. 545.

The Diet with Stomach Disease.—Loeper urges not to forget that sugar and salt, as well as cream and olive oil, check gastric secretion and hence are useful with hyperchlorhydria and with uncomplicated ulcer. On the other hand, when we wish to stimulate gastric secretion we have the choice of meat juice and extract, milk, gelatin, bread, peptone, raw meat, etc. Starch, boiled meats, egg albumin and solid fat, he adds, have little influence either way. With dilatation of the stomach, the food must be dry; with small stomachs, the meals must be fractioned. With a complicated ulcer, intolerant, or hemorrhagic, the food should be highly sweetened or possibly pure sugar be given. He emphasizes further that disease of the stomach affects the whole system, and as a rule there is excessive loss of minerals and especially of calcium. It is important therefore to remedy this demineralization. Minerals can be supplied in various foods, he continues; cheese contains large amounts of calcium and other minerals, and yolk of egg nearly as much, bone marrow even more, and ham as much as 5.8 per thousand; yoghurt, 4.71; kefir, 3.39; oysters, 2, and grapes, 2.13. "The stomach complains noisily, but the whole organism suffers silently along with it."

Revue Franç. de Gynécologie et d'Obstét., Paris

May, 1920, **15**, No. 5

Indications for Emmenagogues. P. Dalché.—p. 193.
Tuberculous Glands in the Axilla Enlarging During Pregnancy. P. Guéniot.—p. 206.
Allowing Parturients to Get up Early. A. Grosse.—p. 209.

June, 1920, **15**, No. 6

Technic for Conservative Cesarean Section. M. Rivière and J. Lacouture.—p. 241.
Hysteropexy by the Round Ligaments. L. Aubert.—p. 248.
Torsion of Ovarian Cysts in Pregnancy. G. Deverre.—p. 255.
Drop Irrigation Treatment of the Infected Uterus. E. Michon.—p. 258.

August, 1920, **15**, No. 8

*Treatment of Hemorrhage from Detachment of the Placenta. A. Grosse.—p. 321.

Treatment of Hemorrhage from Detachment of Placenta.—Grosse refers to a placenta attached to the lower segment of the uterus, and reports a case in which the suddenness and the violence of the hemorrhage required immediate delivery without waiting for dilation of the os. The woman and child were saved by immediate cesarean section. In connection with this case he reviews the literature on operative treatment of placenta praevia and the indications for it.

Revue de Médecine, Paris

June, 1920, **37**, No. 6

Lethargic Encephalitis. H. Durand.—p. 321.
*Experimental Epidemic Encephalitis. P. Harvier.—p. 353.
Acute Encephalitis of the Parkinsonian Type. O. Crouzon.—p. 359.
Lethargic Encephalitis in Spain. G. Marañon.—p. 364.

Experimental Epidemic Encephalitis.—Harvier has succeeded in transmitting epidemic encephalitis to rabbits. The virus becomes "fixed" by regular passages through rabbits, killing the animal between the fourth and sixth day. The nervous disturbances and the histologic lesions of the nerve centers are identical, he says, with those observed in man. The virus is kept in glycerin and retains its virulence after desiccation. It is filtrable but is not pathogenic for the monkey and the guinea-pig when derived directly from man, but it becomes pathogenic after several passages through rabbits. It is impossible to induce crossed immunity between poliomyelitis and encephalitis, and convalescents' serum seems to have no action on the other disease.

July, 1920, **37**, No. 7-8

*Mild Forms of Infectious Jaundice. M. Garnier and J. Reilly.—p. 377.
Flaccid Paralysis of the Hand After War Wounds. A. Pitres and A. Laffaille.—p. 409. Cont'n.
The Mental Condition of the Tuberculous. G. Ichok.—p. 427.

Primary Infectious Jaundice.—Garnier and Reilly found that the jaundice was of the spirochetal type in 30.4 per cent. of 1,300 cases of jaundice, but it was of the apyretic acute type in 61.9 per cent. and of the mild infectious type in 4.9 per cent. In 1.9 per cent. the jaundice was noted in syphilitics, and in 0.36 per cent. each the jaundice, was traced to acute yellow atrophy of the liver or to typhoid or paratyphoid infection. This extensive experience has shown that the bacterial etiology must determine the classification of infectious jaun-

dice cases. The spirochetal jaundice keeps its special clinical physiognomy throughout, as also acute apyretic jaundice. The foci of infection of the latter and of the spirochetal type never coincide. Jaundice thus seems to be a clinical syndrome which a small number of germs are capable of causing, perhaps by different mechanisms.

Revue Neurologique, Paris

September, 1920, **27**, No. 9

The Anesthesia from Pressure on the Spinal Cord. J. Babinski and J. Jarkowski.—p. 865.
Sclerosis of Long Fibers. H. Claude and H. Schaeffer.—p. 872.
Parkinsonian Syndrome from Focus in Midbrain. J. Tinel.—p. 878.
*Concussion of the Brain. H. Duret.—p. 888.
*Familial Spastic Paraplegia. P. van Gehuchten.—p. 901.
*Fatal Obesity. G. Marañon and E. Bonilla.—p. 909.

Concussion of the Brain.—Duret discusses fatal concussion of the brain in which no lesions can be detected, and also fatal trauma of the skull and brain without concussion. Pure concussion, without lesions, is extremely rare in the fatal cases, if it ever occurs.

Familial Spastic Paraplegia.—In van Gehuchten's case there are six other members of the family presenting more or less pronounced spastic paraplegia in three generations. The first symptoms appeared at about the age of 30 in all.

Fatal Obesity.—Marañon and Bonilla emphasize the connection with syphilis in the case they describe in a woman of 29. She weighed 157 kg. although only 1.6 meters tall. The pituitary was found normal, but both thyroid and ovaries were pathologic. There were 7,756,200 erythrocytes to 11,320 leukocytes, with Arneth displacement to the left. There was very little fat around the heart, but the myocardium showed degeneration, and this was probably responsible for the sudden death. The histologic findings in the thymus showed functional persistence although it weighed only 12 gm. The woman had been thin until the age of 18, when syphilis was contracted, and she began to increase in weight a few months later.

Schweizerische medizinische Wochenschrift, Basel

Dec. 30, 1920, **50**, No. 53

Gliomatosis of Sacral Cord and Pia. W. Rütimeyer.—p. 1201.
Treatment of Caustic Injury of Esophagus. F. Häberlin.—p. 1208.
Experiences with Arsphenamin at Basel. E. Frey.—p. 1215. Conc'n.

Policlinico, Rome

November, 1920, **27**, Surgical Section No. 11

Subcutaneous Inguinal Hernia. E. Borelli.—p. 341.
*Heliotherapy for Surgical Tuberculosis. L. Negri.—p. 352. Conc'n.
*Implanting Ureter in Bladder. A. Pennisi.—p. 362.
Occlusion of Intestine by Gallstone. G. Pinardi.—p. 370.

Heliotherapy in Surgical Tuberculosis.—Negri does not hesitate to assert from his six years of experience that surgical tuberculosis can be cured in all its forms, at every stage and at all ages with heliotherapy. He is not so affirmative in regard to visceral tuberculosis, but cites a number of remarkably successful cases from his own and Rollier's experience. Success is especially frequent in tuberculous peritonitis. In one case of tuberculous adnexitis the local and general condition improved notably during a three months' course of heliotherapy, notwithstanding coexistent respiratory tuberculosis. But in this, as also in a case showing great improvement of a tuberculous urinary process, the patients would not wait to complete the course. He refers further to Rollier's success with tuberculosis of the testicles, adding that the practically invariable involvement of the seminal vesicles and prostate forbids surgical treatment. In conclusion he remarks that while all physicians admit theoretically the usefulness of heliotherapy for so-called bone and joint tuberculosis, yet comparatively few insist upon it for their patients, and still fewer apply it. It is not enough to order the patient to take sunbaths. The course must be systematically planned and applied, and for this Negri urges multiplication of inexpensive institutions for the regular application of heliotherapy. His own work was done in the Novara foothill district in northern Italy.

Implanting of Ureter in Bladder.—Pennisi performed the ureterocystostomy to cure a fistula between ureter and vagina, a relic of extensive suppuration after a septic abortion. The results have been perfect during the five years to date. He did not leave a catheter in the ureter nor even in the bladder after the operation, dreading the irritation therefrom, and the successful remote outcome justifies his technic.

December, 1920, **27**, Medical Section No. 12

*Pseudosyringomyelia and Chronic Poliomyelitis. Giannuli.—p. 441.
*Experimental Epilepsy. G. Amantea.—p. 462.
Tumor in Frontal Lobe Compressing Cavernous Sinus. G. Artom.—p. 473.

Pseudosyringomyelia and Chronic Poliomyelitis.—Giannuli reproduces seven photomicrograms from a case of symmetrical muscular atrophy of the Aran-Duchenne type. The necropsy findings the fortieth year of the disease demonstrated that such cases should not be labeled pseudosyringomyelia but be classed as the sclerotic myelitis form of chronic poliomyelitis.

Experimental Epilepsy.—Amantea's experiments on dogs with strychnin and electricity applied to the exposed sensory-motor nerve centers, showed that epileptic phenomena could be elicited not only directly but indirectly by irritating from the periphery the corresponding region of the skin. The reflex-eliciting zone of the skin thus becomes an epileptic phenomena-eliciting zone. These phenomena start always in the group of muscles corresponding to the strychninized nerve centers. After cauterization of the nerve centers involved, it is impossible to elicit the epileptic phenomena even with the strongest stimuli. This confirms the participation of the cortex in the epileptic attack. By means of a disk of blotting paper, dipped in a 1 per cent. solution of strychnin or other chemical, and applied directly to the center for the extensor muscles of the paw or fingers, we can test the efficacy and adequacy of stimuli for sensory nerves in the internal organs and in the organs of sense, and study the inhibiting action of afferent stimuli along with or consecutive to the epileptogenous.

Riforma Medica, Naples

Dec. 4, 1920, **36**, No. 49

*Occupational Poisoning in Munitions Workers. C. Rubino.—p. 1121.
Lymphosarcoma in Right Lung. G. Carisi.—p. 1124.
*Induced Dullness in Left Chest in the Healthy. C. Minerbi.—p. 1126.
The Oölemma of Mammals. A. Mazzarella.—p. 1127.

Occupational Poisoning in Munitions Workers.—Rubino refers in particular to trinitrotoluol poisoning as seen in sixty-seven of 410 workers on munitions.

Area of Dulness in Left Chest.—Minerbi found that it was possible to induce what is called "Grocco's left cap" in healthy young persons by the technic described. This "cap" is found as an area of dulness capping the normal outline of the left margin of the heart in case of mitral stenosis. It can be induced in the healthy by pressure on the eyeballs as the patient lies supine and the legs are passively raised upright. After pressure on the eyeball for fifteen seconds, the legs are slowly dropped to the level of the bed. By this means the auricular appendix of the heart undergoes a kind of shock. He regards this as proof that the tonic reflex of the auricle and Grocco's cap are two phenomena interesting in inverse sense the left auricular appendix.

Dec. 11, 1920, **36**, No. 50

Action in Vitro of Neo-Arsphenamin on Anthrax Bacilli. F. Tallo.—p. 1145.
*Reaction of Human Heart to Epinephrin. A. Fulchiero.—p. 1147.
Valsalva's Experiment with Diaphragmatic Eventration. N. Samaja.—p. 1151.
Epidemic of Poliomyelitis. E. Donetti.—p. 1152.
*Transformation of Tubercle Bacillus Into a Saprophyte. L. Sivori.—p. 1154.
Insufficiency of the Spine. E. Aievoli.—p. 1156.

Reaction of the Heart to Epinephrin.—Fulchiero gives tracings which show that the epinephrin test of the functional capacity of the heart is incapable of giving reliable results on account of the multiformity and varying intensity of the responses, depending on the condition in the endocrine system of different individuals. Epinephrin may possibly prove useful to determine the tonus of the myocardium, paying heed to the appearance of extra systoles and of the contemporaneous increase in the arterial pressure. Thus a considerable increase in the pressure without production of extra systoles testifies to good tonus of the myocardium,

while the appearance of extra systoles, even with a relatively slight increase in pressure, signifies insufficient tonus, other things being equal. Hence the production of extra systoles after injection of 1 or 1.5 c.c. of a 1:1,000 solution of epinephrin may be regarded as a sign which, considered in connection with other clinical signs, may facilitate the diagnosis of pernicious anemia.

The Tubercle Bacillus Transformed to a Saprophyte.—Sivori explains that when the soil is resistant, the tubercle bacillus is practically a saprophyte. By this means we can distinguish between active and inactive tuberculosis. To determine the resisting power of the soil he tests with the poisons of fatigue. This shows the margin of resistance, and thus throws light on the amount of defensive and reactive reserves which the tuberculous organism can present to combat the tubercle bacilli. He does not give the details of his technic, but he reiterates that by determining the toxic action of the poisons of fatigue, it is possible to estimate the latent resistance of the tuberculous, and thus learn the defensive reserves on hand.

Brazil-Medico, Rio de Janeiro

Oct. 30, 1920, **34**, No. 44

*Typhus at S. Paulo. A. P. Ulhôa Cintra and J. de Toledo Pisa.—p. 715.
Case of Exstrophy of the Bladder. Barros Lima.—p. 719.
*Multiple Verrucous Pigmented Nevi. T. Tollendal.—p. 720.

Typhus at S. Paulo.—The case reported is said to be the third ever recorded at S. Paulo. The patient was a child of 10 and the differential diagnosis was puzzling until the agglutination of the proteus X at 1:6,000 confirmed the disease to be typhus.

Pigmented Nevi in Idiot.—The numerous verrucous nevi are scattered over the body of the young child with inherited syphilis, a pronounced idiot.

Crónica Médica, Lima

November, 1920, **37**, No. 689

Luxation and Fracture of Shoulder. F. Wieland.—p. 361.
Pathogenesis of Bronchial Asthma. A. Mora Quimper.—p. 364.
Endemic Goiter in Ancash Region of Peru. D. D. Antunez.—p. 371.
*Obesity. L. O. Romero.—p. 372. Conc'n No. 690, p. 417.
Myxomas of the Kidneys. R. Molla.—p. 376.
Retention of Urine from Retroversion of Uterus. B. Sosa Artola.—p. 384.

Treatment of Obesity.—Romero's method of treating obesity has already been summarized in these columns, May 10, 1919, p. 1402. It forms a ten months' course of which psychotherapy is the base from the very first. An extremely thorough and exhaustive examination of the patient, writing down his replies to questions, serves among other things to establish a confidential intimacy between physician and patient, arousing interest, ambition and encouragement as the progress realized is appreciated. The system is first cleared of toxins, then the course plans to prevent their further development, and to cultivate a love exercise. He regards obesity as a disease of which weakness of the will is one of the main factors. Instead of the patient being a passive element in the treatment, as in other diseases, he must be taught and inspired to cure the disease himself. The main obstacle to the success of Romero's treatment, he says, is the prejudices and discouragement from other members of the family, and sometimes from other physicians, with which the attending physician and the patient have to contend.

Revista Española de Medicina y Cirugía, Barcelona

September, 1920, **3**, No. 27

*Traumatic Epilepsy and Brain Cyst. S. Cardenal and J. Castellá.—p. 467.
*Inflammatory Tuberculosis of Nervous System. G. Roqueta and P. Umbert.—p. 475.
Deep Radiotherapy of Cancers. C. Comas and A. Prió.—p. 485.
*Nonspecific Antigen Therapy. A. Salvat y Navarro.—p. 490.

Hydatid Cyst in the Brain.—Cardenal and Castellá relate that symptoms of epilepsy developed in a boy of 14, a year after a fall on the right parietal region causing unconsciousness for two hours. The epileptiform seizures with unconsciousness for two or three minutes recurred finally every six or seven days, and partial right hemiparesis also became installed. A large flap over the left rolandic region showed the dura intact, but when this was incised a profusion of hydatid daughter cysts poured out of the opening. The cyst occupied the space of the anterior third of the left hemisphere, and within extended beyond the median line, but the symptoms had been remarkably mild in comparison with its extent. The capsule was removed entire, and recovery was complete in time except for inability to extend the fingers of the right hand and slight facial paresis; otherwise practically normal conditions have been restored. The lad had one seizure afterward at the seventh month but no more during the three months since to date. They packed the cavity left after removal of the cyst with a long strip of gauze, removing it gradually and completely by the sixteenth day.

Tuberculosis of Nervous System.—Roqueta and Umbert describe six atypical cases, including one of a physician of 35 who developed neuralgia in the arms and skull, with a tendency to paresis and contracture in the legs. The symptoms proved rebellious to all treatment, except morphin, and the martyrdom kept up till death. This experience was repeated in another case in which the pains shifted about, yielding only to two daily injections of morphin, with death the fifth month. In a third case the symptoms of toxic polyneuritis became complicated with symptoms resembling those of sclerosis in patches. In three other cases the men died not long after the onset of the nervous symptoms suggesting ascending paralysis, arthritis from septicemia or brain tumor. In all the six cases there was nothing to suggest syphilis, and tentative treatment on this basis only aggravated conditions. All of these patients, however, had an unmistakable small tuberculous lesion somewhere, so that toxins of the tubercle bacilli may well explain the condition. In the first case the neuralgia developed soon after the abrupt, spontaneous subsidence of an extensive tuberculous skin eruption. In one of the other cases, enlargement of glands and conjunctivitis accompanied the nervous disturbances. Improvement was realized in one case under heliotherapy, but the patient refused to complete the course. The lungs did not seem to be affected in any of these cases, but in reality there was probably some pulmonary focus in all.

Protein Therapy.—Salvat reviews the cases and history of what he calls nonspecific antigen therapy and parabacterial tachyphylaxis or protein shock. He cites clinicians who have realized this therapeutic protein shock without protein, merely with an injection of a glucose solution by the vein, saving the apparently moribund pneumonia patients. He adds that unless the organism is capable of reacting, these measures are futile. They yield all—and this almost instantaneously—or they yield nothing at all.

Revista Médica del Uruguay, Montevideo

August, 1920, **23**, No. 8

*Inversion of the Uterus. H. Loriente.—p. 371.
Medicinal Treatment of Influenza. F. Paladino.—p. 381. Conc'n.
Abdominal Cesarean Section for Retroplacental Hemorrhage. H. Platero.—p. 389.

Inversion of the Uterus.—Loriente reports two cases of puerperal inversion. In the first he was unable to reduce the inversion, but in the second case, in a young woman, he injected a preparation of opium and gave saline subcutaneously to combat the extreme tetany of the uterus and to replace the blood that had been lost. He then packed with sponges dipped in very hot water all the space around the uterus in the vagina and placed the patient in the Trendelenburg posture. After waiting for three quarters of an hour, he found the uterus walls somewhat relaxed, and with his whole hand he compressed the inverted uterus, while with the other hand and the aid of the assistant he tried to enlarge the os through the abdomen. By thus squeezing the inverted uterus, like a sponge, the blood was expressed and the size reduced, and in fifteen minutes of these continuous maneuvers the uterus slid back into place. The inversion in this last case occurred spontaneously, an hour after delivery, with agonizing pains. He ascribes his success in reduction to the hot sponges packed around the inverted uterus which did not project beyond the vulva, the sponges serving also to protect the uterus during the compression with the whole hand.

Siglo Médico, Madrid

Sept. 25, 1920, **67**, No. 3485

Neohippocratism. H. F. Delgado (Lima).—p. 725.
Atypical Acute Meningitis. B. Gil y Ortega.—p. 728. Conc'n No. 3486, p. 750.
*Phototherapy in Gynecology. S. Recasens.—p. 731. Conc'n.

Phototherapy in Gynecology.—Abstract was published, Feb. 12, 1921.

Oct. 2, 1920, **67**, No. 3486

*Pathologic Anatomy of the Eye. E. Fuchs.—p. 745. Conc'n No. 3492, p. 860.
Seborrhea of the Aged. Sicilia.—p. 748.
*Auto-Observation of Strychnin Poisoning. D. Gómez Repiso.—p. 748.

Pathologic Anatomy of the Eye.—This is the report in detail of the course of lectures delivered by Fuchs of Vienna at Madrid.

Strychnin Poisoning.—Gómez Repiso describes his own experience when he took a 10 cg. wafer of strychnin by mistake for quinin. A robust young woman taking one of the tablets at the same time soon died in convulsions. His first symptom was an intense itching, then slight sensations of suffocation, fleeting phosphorence visual sensations, and slight nausea, but no pain, no regurgitation. The tonic contractions of the larynx became more severe, rendering it difficult to swallow the coffee ordered by the physician after a hypodermic injection of caffein or camphorated oil. Four or five paroxysms of tonic contractions followed. They were so violent that the pain caused unconsciousness. During these paroxysms, artificial respiration was applied as indicated. An enema of chloral was given, and although the nervous excitability persisted throughout the day, no other untoward manifestations developed except that the surface of the tongue was black for two or three days. He is inclined to ascribe his survival after such a large dose to the fact that the organs which strychnin predominantly affects, namely, the gray matter of the spinal cord and medulla, were already diseased, as his legs had long been paralyzed and both hip joints and knees were ankylosed from disease in youth.

Oct. 9, 1920, **67**, No. 3487

Hemorrhage from Anterior Median Artery. C. Juarros.—p. 761.
Musical Sense in Deafmutes. V. Ribón (Bogotá).—p. 762.

Oct. 16, 1920, **67**, No. 3488

A Mechanism that Prevents Coagulation of Blood Within the Vessels. B. A. Houssay and A. Sordelli (Buenos Aires).—p. 777.

Oct. 23, 1920, **67**, No. 3489

The Greatest Sanitarian of the World: General Gorgas. M. Salazar.—p. 797.
Hemodystrophies and the Mendelian Laws. Pittaluga.—p. 798. Conc'n No. 3490, p. 818.

Oct. 30, 1920, **67**, No. 3490

Odors and Digestion. M. G. López de Lara.—p. 817.

Deutsches Archiv für klinische Medizin, Leipzig

Aug. 25, 1920, **133**, No. 3-4

*High Blood Pressure and the Kidneys. P. v. Monakow.—p. 129.
*Arteriolosclerosis of the Kidneys. K. O. Rosenthal.—p. 153.
*Nephrosis with Bence-Jones Albuminuria. S. J. Thannhauser and E. Krauss.—p. 183.
*Partial Sinus-Auricle Block. M. Straubel.—p. 193.
*Sinus Arrhythmia. M. Straubel.—p. 216.
*Erythrocyte-Destroying Action of the Spleen. E. Frey.—p. 223.
Hematology of Influenza. F. Harry.—p. 237.
*Venous Pulse. A. Weber.—p. 245; Idem. H. Straub.—p. 253.

High Blood Pressure and the Kidneys.—Monakow presents evidence that permanently high blood pressure is always preceded by abnormal contraction of the arterioles in extensive vascular regions. Even when the arterioles are organically modified, there is a spastic element involved in the abnormally high blood pressure. It is impossible to explain otherwise than with this assumption the fact that in many cases with pronounced sclerosis of numerous arterioles the blood pressure may be within normal range or below, without signs of cardiac insufficiency. These contractions of the vessels can be induced by nervous influences (disturbances in the domain of the sympathetic, from emotional influences), or they may be induced by changes in the internal secretions, or by poisons. They may also be induced by the influence of the kidneys. A high blood pressure is thus a symptom which—like fever—has no single etiology. To attempt to trace this symptom to a single cause—disease of the kidneys—is futile. Even with the so-called nephrosclerosis, the rise in blood pressure is not conditioned by the kidneys; for the kidneys can be entirely intact not only functionally but also anatomically. The trouble is a primary hypertonia which may be of different origins. The changes found in the renal vessels are not specific for this hypertonia; they do not entail contraction of the lumen of the vessels. They probably represent merely an insignificant consequence of the hypertonia.

Arteriolosclerosis of the Kidneys.—Rosenthal writes from the Pathology Institute of which Aschoff is director, to protest against the separation of arteriosclerosis of the kidneys into a mild and a malignant form. He refuses to accept any specific etiology, like syphilis or lead, for genuine contracted kidney. The changes considered characteristic of the mild and the malignant form are merely links of a single chain, as he shows by concrete examples.

Nephrosis with Bence-Jones' Albuminuria.—Thannhauser and Krauss found in a case of small smooth white kidneys a diffuse and intense degenerative change of the entire epithelium of the tubuli while the glomeruli were scarcely involved. The urine contained the Bence-Jones protein, and multiple myelomas were found in ribs, thighs and spine. The man died the sixth month with signs of insufficiency of the kidneys, without abnormally high blood pressure and without hypertrophy of the heart.

The Cardiac Impulse and Conduction.—Straubel reports four cases of partial sinus-auricle block, and discusses different anomalies in relation to the formation and conduction of the impulse. He ascribes the block to a disproportion between the strength of the impulse and its consequences. The old explanation of increasing impairment of conduction is not applicable here as there is no conducting system between the sinus and the auricle. In his second communication he describes two cases of extreme sinus arrhythmia. The normal relations between the auricle and the ventricle beats were retained in these cases. The only explanation is the assumption of an arrhythmia of the sinus alone.

Erythrocyte-Destroying Action of the Spleen.—Frey reports experiments which show that the blood from the splenic vein contains fewer erythrocytes than the arterial blood or the blood from a vein in the ear. This difference in the number of erythrocytes between the arterial and the splenic vein blood becomes larger when the resistance of the red corpuscles has been reduced by a blood poison such as ether. The difference grows less and less when the resistance of the red corpuscles is enhanced, by substances such as phenylhydrazin. The hemoglobin percentage was alike in both splenic vein and ear vein blood in dogs. As there are fewer erythrocytes in the splenic vein, this finding in regard to the hemoglobin seems to suggest that free hemoglobin is present in the serum of the splenic vein blood. He found further that the spleen acts as a close filter for foreign erythrocytes, allowing very few to pass in dogs. During ether anesthesia, the minimal resistance of the red corpuscles to hypotonic saline solution is very much reduced.

The Venous Pulse.—Weber says that the venous pulse was found in 399 of 400 cases of heart disease with failing or lost compensation, and hence he accepts it as a pathologic phenomenon and a very early symptom of incipient stasis. The premature beginning of the diastolic venous wave—or as he prefers to call it, the premature end of the systolic collapse—is a sign of beginning circulatory derangement. This symptom is such a sensitive reaction that it occurs long before other methods of investigation give any information in regard to the tendency to stagnation.

Mittheil. a. d. Grenzgebieten d. Med. u. Chir., Jena

1920, **32**, No. 3

*Goiter and Thymus. Haberer.—p. 329.
*Experimental Tetany. E. Farner and R. Klinger.—p. 353.
*Continuous Bath in Treatment of Wounds. W. Sacken.—p. 374.
Carcinoma of Stomach. G. Sandberg.—p. 399.
Acute Suppuration of Abdominal Lymph Glands. P. Schenck.—p. 414.
Differential Diagnosis of Diaphragmatic Hernia. H. Bentler.—p. 422.
*Osteitis Fibrosa. M. Roth and J. Volkmann.—p. 427.
Extra-Medullary Tumor of Spinal Cord. C. Jacob.—p. 454.
*Influence of Iodin on Ovaries. M. Jastram.—p. 460.

Goiter and Thymus.—Haberer in his previous papers advocated a simultaneous operative reduction of the thymus in

exophthalmic as well as in simple goiter when hyperplasia of thymus forms a complication. His studies now are extended by 9 cases, and an analysis is made of the entire material, especially with reference to exophthalmic goiter, a total of 32 cases which recovered, and 3 which ended with death. Three cases were followed for seven years and showed thus far perfect recovery from all symptoms. Other 3 cases were observed for six years; 7 for five; 3 for four; 8 for three, and 8 for two years or less. In some instances nervous symptoms were noted, probably superinduced by the war. In 10 cases where an operative reduction of thyroid and thymus had taken place, there was a recurrence of the goiter, but wholly without exophthalmic manifestations. The 3 cases which ended in death induce the author to warn against deferring the operation until irreparable heart disturbances have set in.

Experimental Investigations of Tetany.—Farner and Klinger studied by experiments on rats the problem of the relations between the parathyroids and tetany. Removal of the parathyroids in many cases has been followed by tetany, but not in all. Negative results had been explained by the development of accessory parathyroid elements. Total removal of these glands in the rat is almost impossible, hence this animal is well suited for a study of the influence of the accessory elements on the manifestations of tetany. The operation and subsequent feeding of the animals are fully given. As a general result is noted: Between ten and twenty hours after operation, stiffness especially in limbs, flexion of forepaws, tremor in all the paws; all lasting from one to three hours. No depression. Subsequent development is for a time normal. No regular cachexia. Lower incisors invariably become opaque, and some teeth break off. After exertion, sporadic attacks of brief general tetany, sometimes followed by death. In eight of the sixty-four rats accessory parathyroid tissue was present as an atypic development; genuine accessory tissue was present in two cases. In no case did this development alter the results or give rise to a restitution of the normal condition of the animal.

Continuous Bath in Treatment of Wounds.—Sacken studied the influence of the permanent bath in a large number of surgical diseases and postoperative conditions, especially with extensive wounds, burns and excisions. Postoperative hemorrhages are a serious consideration, yet statistics are given of 282 cases, with an average treatment of thirty-seven days, where 134 showed complete recovery and forty-two considerable improvement, while 106 died. It must be noted that many of these 106 cases were hopeless, and the water-bed was used merely to relieve the last days of patients with severe spinal or pelvic complications. Good effects were noted in tetanus.

Generalized Osteitis Fibrosa.—Roth and Volkmann describe exhaustively a case of this rare disease (originally diagnosed by Recklinghausen), and give a bibliography of the disease. The etiology is unknown, but systematically the disease is classified with the sclerosis of the vascular glands, and a permanent injury to the myeloid system which prevents the retention of unripe cells—evident in the presence of myelocytes in the blood during exacerbations. The case under treatment developed in a woman after the menopause had set in. Treatment with glandular extracts no longer could be attempted. A transplantation of parathyroid tissue was indicated by the findings of O. Meyer, who determined in one case a distinct parathyroid tumor (microscopically proved a simple hyperplasia). No specific treatment is known. Lime is retained and sometimes gives temporary improvement.

Influence of Iodin on Ovaries.—Jastram experimented on young dogs beginning with doses of 0.006 gm. of iodid of potassium per kilogram weight and increasing the dose to 2.0, per kilogram, three doses each day. The effect was uniform in sixty-four animals, each receiving a total of 200 gm. of potassium iodid: a development of dense rigid elements of connective tissue amidst the ovarian epithelia. The epithelia themselves showed a distinct poverty of nuclei. No visible influence upon the follicular elements could be ascertained. This result proves the deleterious effect of iodin on the sexual glands, which has been now and then asserted, but hitherto without proof.

Münchener medizinische Wochenschrift, Berlin

Oct. 15, 1920, **67**, No. 42

Mushroom Poisoning. E. Fraenkel.—p. 1193.
Unsuccessful Attempts to Influence Tuberculosis by Wax-Dissolving Substances. W. Stoeltzner.—p. 1196.
Serious Gastro-Intestinal Hemorrhage. G. Kelling.—p. 1198.
*Treatment of Lymphomas. Baensch.—p. 1199.
*Decapsulation of the Kidney in Nephritis. W. Karo.—p. 1200.
Treatment of Neurosyphilis. H. Schmidt.—p. 1201.
Trials of Intradermal Own Urine Test. H. Reinecke.—p. 1202.
Treatment of Vaginitis with Iodin. L. Froriep.—p. 1202.
Construction of Vagina from Intestine. A. Hörrmann.—p. 1203.
Idiosyncrasy for Wasp Venom. R. Berg.—p. 1204.
Observations on Eugenics. L. Knapp.—p. 1204.
Therapeutic Effects of Pneumoperitoneum. Kästle.—p. 1205.
Peculiar Exanthem in Diabetes. H. Koch.—p. 1205.

Treatment of Lymphomas.—Baensch has found from his observations in a large series of cases that it is important to make a careful examination of the patient in order to discover if possible the gate of entry of the infection. It is surely not due to chance that 88 per cent. of all lymphomas are found in the neck. In every patient he examines carefully mouth, nose, the lymphatic tissue of the pharynx, and the scalp, and he is convinced that besides carious teeth and hypertrophied tonsils with chronic suppuration, external eczema plays an important rôle in the pathology of the lymph glands. If the lymphomas are of nontuberculous origin, heliotherapy is of no avail. The fundamental cause must be removed first. In many cases the glandular swellings receded as the result of merely removing the tonsils or extracting old molar roots. If the hyperplasia produced by the chronic irritation does not retrogress spontaneously, he applies roentgen-ray treatment, which gives good results provided the focus of infection has been removed. In the case of lymphomas of tuberculous origin, if there are well circumscribed solitary glands that are not broken down they can be removed surgically if time and money must be taken into account; otherwise he uses the quartz lamp or natural heliotherapy; in stubborn cases, combined with roentgen-ray treatment. If patients can be treated for from three to four months the results are without exception excellent; especially from a cosmetic point of view.

Decapsulation of the Kidney in Nephritis.—Karo recommends decapsulation of the kidney in such cases of nephritis as show no improvement either clinically or functionally in spite of long continued conservative treatment. Decapsulation as introduced by Edebohls is not a dangerous operation. The operation is strongly indicated in severe attacks of uremia brought on by anuria. In such cases the operation saves many lives. The operation is also indicated in cases of nephritis dolorosa and in hemorrhagic nephritis; here the decapsulation of one kidney is sufficient; in all other cases bilateral decapsulation is to be preferred. The operation is best performed under ether narcosis.

Therapeutische Halbmonatshefte, Berlin

October, 1920, **34**, No. 19

*Gastric and Duodenal Ulcer. H. Finsterer.—p. 525.
Diseases of the Tympanic Membrane and Middle Ear. M. Maier.—p. 529. Cont'd.

Indications for Operation in Gastric and Duodenal Ulcer.—Finsterer states that owing to improvements in surgical technic and the substitution of local anesthesia for general narcosis, the indications for operation in gastric carcinoma have been much extended. Although many of his cases were of unfavorable prognosis (advanced age; involvement of esophagus, colon, liver and pancreas; metastases), in 144 operations for carcinoma the mortality was only 17.3 per cent. He thinks operations for chronic gastric ulcer should be more frequent. Following an acute hemorrhage it has been the custom until recently to take a conservative stand and to postpone operation until the patient had recovered from his anemia. For the last four years Finsterer has favored immediate operation in such cases. He has operated in 32 cases of gastric ulcer during the stage of acute hemorrhage, 17 of which were resections. He lost only 2 cases, a mortality of 11.7, which he thinks is a good showing when we consider that most of the patients had received internal treatment for a long period and that the radial pulse at operation was often imperceptible. In resection of duodenal ulcer he regards it as absolutely necessary to remove at least half of the stomach

in order to get good permanent results. From his experience with 150 duodenal ulcers he states that it is not absolutely necessary to remove the ulcer itself. It is sufficient if, in place of the simple unilateral exclusion by Eiselsberg's method, half or two thirds of the stomach is resected, the distal gastric lumen being closed tight in front of the pylorus, with end-to-side anastomosis between the partially sutured proximal lumen and the first loop of the jejunum. Finsterer has used this method in 103 resections for duodenal ulcer and for 43 gastric resections for the exclusion of duodenal ulcer; has been able to observe the results in 84 cases for varying periods up to four and one-half years, and there have been no failures.

Wiener klinische Wochenschrift, Vienna

Oct. 7, 1920, **33**, No. 41

The Cause of Heart-Beat. G. Mansfeld.—p. 897.
*The Rôle of Infections in Scurvy. H. Abels.—p. 899.
Clinical and Therapeutic Aspects of the 1920 Influenza Epidemic. O. Schiffner and G. Spengler.—p. 901.
Investigations on Intracutaneous Reactions. E. Hoke.—p. 904.
*Reflux of Duodenal Secretion into Stomach. L. Jarno.—p. 906.
Mortality from Tuberculosis in Vienna Before and After the War. S. Peller.—p. 906.

The Rôle of Infections in Scurvy.—On the basis of experiments with guinea-pigs, Abels states that a scorbutic organism presents diminished resistance to specific infectious diseases. The guinea-pigs in which a scorbutic condition was to be induced were fed only grain and water. Control animals were given 5 gm. of cabbage leaves in addition to the oats and water. Abels found that the scorbutic guinea-pigs succumbed to much smaller amounts of cultures of *Bacterium coli* injected peritoneally, in spite of the fact that this microorganism is only slightly pathogenic for guinea-pigs. Following intracutaneous injections of staphylococci, toward which (as toward all pyogenic organisms) guinea-pigs are very resistant, he discovered distinctly palpable infiltrates and in one case an abscess, whereas the controls presented either a very slight infiltrate or none at all. The fact that scorbutic animals readily succumb to pneumonia is also evidence of increased sensitiveness to infection. He also found support for the assumption that hemorrhages observed in scorbutics are also brought about by the toxic effects of infections.

Reflux of Duodenal Secretion After the Period of Activity of the Empty Stomach.—Jarno discusses the further results of his investigations on borborygmus, which he finds occurs in most persons when hungry. Borborygmus returns periodically coincident with the period of activity of the empty stomach, as established by Boldyreff. Boldyreff found also in his animal experiments that, after the end of this periodic activity, a mixture of pancreatic juice and bile flowed back into the stomach from the duodenum, and he raised the question whether this was a pathologic or a physiologic phenomenon. Jarno has made a similar finding in experimental human subjects. If only from fifteen to twenty minutes had elapsed after borborygmus had ceased, he could usually obtain from the stomach a bile-tinged secretion, which contained free hydrochloric acid. When he examined the stomach contents one hour after borborygmus had ceased, he obtained either an acid secretion without bile pigments or no secretion at all. The presence of bile pigments in the gastric juice is the best indicator for duodenal fluid. In some subjects borborygmus lasts only from one to two minutes; in others, from fifteen to twenty minutes. The period of activity of the empty stomach is usually completed at the end of from fifteen to twenty minutes. There are two possible interpretations of the mechanism of this regurgitation. Possibly, when the activity of the empty stomach is ended, primary regurgitation takes place and stimulates the secretion of gastric juice. A second interpretation, which Jarno favors, is, that after the activity of the empty stomach has ceased—for some as yet unknown reason, a gastric secretion occurs, which in turn induces the reflux from the intestine for the purpose of neutralizing or at least weakening the acid present in the stomach. His observations were all made on persons with healthy stomachs, for which reason he regards the reflux following borborygmus as a normal physiologic process. He thinks this finding may have great practical diagnostic value. We shall doubtless be able, in the case of most patients, to obtain from the stomach either bile or a mixture of bile, gastric juice and duodenal secretion, provided the proper time for the examination of the stomach contents is chosen.

Zentralblatt für Chirurgie, Leipzig

Oct. 16, 1920, **47**, No. 42

*Temporary Blocking of the Phrenic Nerve. O. Goetze.—p. 1290.
*Blocking of Sympathetic and Vagus Nerves. C. Steinthal.—p. 1293.
*Suturing of Musculature to Goiter Stump. J. Dubs.—p. 1294.
*Sterilization of Instruments. A. Rebula.—p. 1297.

Temporary Blocking of the Phrenic Nerve.—Goetze describes a case of protracted hiccup occurring in a young woman following appendectomy. The hiccup had persisted for weeks. With fluoroscopy the cardia could be seen to open suddenly synchronously with the clonic spasms of the diaphragm; the esophagus was stretched and opened, and air was drawn with a loud sound into the esophagus and stomach. The stomach contained no fluid but was greatly distended by air. The whole of the large intestine was seen to contain large quantities of gas. As the result of the large amount of air in the stomach, the left side of the diaphragm was distinctly higher than the right, and it appeared as if this pressure on the left side of the diaphragm constituted an important link in a vicious circle that was keeping up the singultus and the aerophagia. Therefore, three fingerbreadths above the left clavicle, where the scalenus anticus muscle can be plainly felt, 20 c.c. of a 1 per cent. solution of procain were injected slowly, distributing it over its anterior surface. The loud hiccup immediately became less violent and soon ceased entirely, and did not return. As the hiccup stopped, it was noted that the spasmodic contractions of the left diaphragm had also ceased; that the left side of the diaphragm was no higher than the right, and that the stomach and intestine were soon relieved of the gas.

Interruption of Sympathetic and Vagus Nerves by the Stierlin Method in Gastric Ulcer.—Steinthal has tried Stierlin's method but his experience has not been favorable. Stierlin holds that the better results securable by means of transverse resection in gastric ulcer as compared with gastroenterostomy are due to the fact that, in addition to the removal of the ulcer, the gastric nerves are severed. This he thinks results in an increase of motility, stopping of the pylorospasm and reduction of the acidity. By the interruption of both the sympathetic and vagus nerves the peristaltic activity is increased through the mediation of the myenteric plexus; and the interruption of the vagus nerve alone reduces hypersecretion and hyperacidity. In place of transverse section, Stierlin therefore recommends that, in such ulcer cases in which the removal of the ulcer itself is not absolutely necessary, a simple circular incision be made, high up on the stomach, through the serous and muscular coats down to the mucosa, so as to interrupt the nerve paths without opening the gastric lumen, whereupon the incision is immediately closed by suture. Steinthal made a practical test of Stierlin's ideas in two cases. A patient aged 18, with marked atony and considerable hypersecretion with hyperacidity, was operated on by the Stierlin method. After the operation, normal peristalsis was reestablished, but the hypersecretion was not affected. In the second case, a patient aged 45, presented before the operation increased peristalsis, a considerable six hour residue and hypersecretion. After the operation, motility was unchanged and gastric secretion was if anything increased.

Primary Suturing of Muscle to Goiter Stump After Strumectomy Without Drainage.—Following the example of Züllig, Dubs during the last three years, in a series of 100 strumectomies, has sutured at once without drainage. The procedure unfortunately makes the formation of hematomas more likely and also increases the danger of the healing of the wound being disturbed. At first Dubs had occasionally fistulas with seropurulent secretion in the line of suturing; also hematomas appeared in several instances. With more experience he has been able to prevent the formation of hematomas. He is extremely careful to arrest all hemorrhage, and the several muscular layers are sutured separately and exactly. The cervical fascia, which at the beginning of

the operation was loosened up for some distance above and below the wound, is sutured in three or more tiers. On the supposition that hematomas are caused by the slight oozing from the goiter stump, Dubs has, of late, in a series of unilateral and bilateral resections, sutured the sternothyroid muscle to the goiter stump. Since using this method no hematomas have formed in unilateral operations and in only two out of twenty bilateral cases. The improvement over former conditions was marked, but the method does not furnish an absolute guarantee against hematomas.

The Sterilization of Instruments.—Rebula states that in many textbooks on surgery instructions for the sterilization of instruments read somewhat as follows: "Instruments may be sterilized by boiling in a 1 per cent. soda solution, which also prevents rusting." That such inaccurate statements should be made by famous surgical experts he finds quite pardonable, since "*de minimis non curat praetor*," but does not think that such nonsense should be perpetuated in the smaller textbooks destined for the use of nurses. He asserts that neither sodium carbonate nor sodium bicarbonate will prevent the rusting of instruments. It is the carbon dioxid in the water that causes the instruments to rust. Neither sodium carbonate nor sodium bicarbonate combines with the carbonic acid of the water. In order to prevent the rusting of instruments 2.5 gm. of sodium hydroxid (NaOH) should be added to 1,000 gm. of water. The sodium hydroxid should be allowed two minutes in which to dissolve and to combine with the carbonic acid of the water, before the instruments are put in the solution.

Zentralblatt für Gynäkologie, Leipzig

Oct. 16, 1920, **44**, No. 42

Rare Injuries Resulting from Coition. E. Weinzierl.—p. 1181.
Source of Danger in Using the Kielland Forceps. Sachs.—p. 1186.
Phantom Abdominal Tumors. T. Micholitsch.—p. 1186.
Operation for Pendulous Abdomen. M. Linnartz.—p. 1190.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Dec. 11, 1920, **2**, No. 24

*Vasomotor Trophic Neuroses. H. Bolten.—p. 2535.
*Case of Porphyrinuria. J. J. van Straaten.—p. 2539.
Bacterial Nomenclature. J. J. van Loghem.—p. 2541.

Vasomotor Trophic Neuroses.—Bolten rejects the theory of spasmodic contraction of vessels as the explanation for trophic neuroses. He argues that some disturbance in the sympathetic innervation is the responsible factor. The analogy with other neuroses which are traceable to a congenital insufficiency of the sympathetic nervous system, the unstable vasomotor balance, the abnormal distribution of the blood, and the defective blood supply to the tissues—all these elements in the clinical picture testify that the underlying cause is hypotonia of the sympathetic nervous system. Treatment which restores proper tone to the sympathetic has a favorable action on the neurosis. The slight vasomotor and trophic disturbances, which are found in all neuroses, are usually the first to disappear under careful thyroid treatment. Even the neuroses affecting hands and feet, in which these vasomotor and trophic disturbances are so pronounced, show regularly great improvement or are cured by treatment directed to the sympathetic system. He adds that this explanation is more plausible than the assumption of a still unproved spasm of the superficial vessels. With a neuropathic constitution there is a predisposition to acroneuroses, and any derangement of the normal distribution of the blood is felt of course most seriously in hands and feet, the regions where conditions are least favorable for the circulation.

Porphyrinuria.—Van Straaten relates that a West Indian negro was brought to the hospital with the diagnosis of ileus. As the symptoms of ileus subsided under enemas, etc., in the course of two weeks, porphyrin was found in the urine, and the arms became paralyzed, but this paralysis seems to be very slowly subsiding. The nerves in the upper arm were still tender three months later and the pulse was still 120, but no further porphyrin could be found. The man had a history of old syphilis but the Wassermann reaction was negative. He had complained of abdominal pains for six months before the attack of ileus.

Norsk Magazin for Lægevidenskaben, Christiania

January, 1921, **82**, No. 1

Aqueous Humor and Its Secretion in the Human Eye. S. Hagen.—p. 1.
*"Encephalitis" Neonatorum. F. Harbitz.—p. 25.
*Chronic Peritonitis with Milky Ascites. F. Harbitz.—p. 30.
The Blood and the Circulation in Infants. K. Utheim.—p. 35.

"Encephalitis" Neonatorum.—Harbitz found a shriveled liver with jaundice and ascites and hemorrhages at necropsy of the prematurely born infant, 14 hours old. Nothing was found to suggest actual inflammation, but signs of this were manifest in another infant with inherited syphilis. In both there was hydrocephalus, but nothing to indicate syphilis in the first case.

Chronic Peritonitis with Milky Ascites.—In Harbitz's two cases the women of about 52 had presented symptoms of cirrhosis of the liver and ulcers in stomach and duodenum with chronic peritonitis. There were also a number of cysts in the mesenteric lymphatic glands and bowel walls. These cysts were filled with milky fluid which had produced chylous ascites as the cysts had burst. The thoracic duct seemed to be intact. Both women had had a dermatitis with leg ulcers.

Upsala Läkareförenings Förhandlingar

Nov. 8, 1920, **25**, No. 5-6

*Cystin Calculi in the Urinary Passages. C. T. Mörner.—p. 265.
*Pressure Variations in Artificial Pneumothorax. A. Bjure.—p. 287.
*Generalized Osteosclerosis. H. Laurell and A. Wallgren.—p. 309.

Cystin Calculi in the Urinary Passages.—Mörner gives a historical review of our knowledge of cystin in the animal body. The substance is an amino-acid, found in the urine and kept in solution at body temperature to the extent of one grain. Cystinuria is a rare disease, yet the number of observed cases rose from twenty-two in 1838 to 114 in 1914. Its etiology is a relative insufficiency of the reduction of various amino-acids. Clinically the condition becomes manifest by a urinary sediment, in rare cases by a calculus formation (47 in 5,292 cases of calculus formation).

Pressure Variations in Artificial Pneumothorax.—Bjure found in three cases (of thirteen) an increase of pressure by inspiration and a lowering of pressure by expiration. These paradoxic variations occurred in two cases only with abdominal breathing, in one case also with costal and common breathing, but only with increased pressure. Radiograms demonstrate clearly the phenomena. The interpretation of these variations is that a real extension of the cavity took place at the outset, the diaphragm functioning in less degree than the levator costae. The tension in the adhesions grows, however, steadily greater, and consequently the initial decrease develops into an increase in pressure. All three cases were men, and their relatively stronger developed diaphragm may account for their greater predisposition for this condition. The practical result of the observation is that when paradoxic manometer oscillations occur, the patient should alternate costal and abdominal breathing. If the point of the needle is located in the thoracic cavity, the oscillations are typical with costal breathing only, but if the needle is within the abdominal cavity, the pressure variations will be paradoxic with both forms of breathing.

Osteosclerosis.—Laurell and Wallgren describe a disease of the skeleton originally observed in a boy of 12. The skeleton showed general fragility, with a marble-like appearance. Two fractures had occurred early, one in each leg. Examination showed that the thyroid was nonpalpable. All osseous structures showed an enormous deposition of lime, especially in the cranium and the trunk. There was a history of hydrocephalus. The long bones showed condensed lime rings and lateral bands. Experiments were made with a view to determine a possible retention of lime in the metabolism, but the result was negative. The diagnosis, founded on history and feeding experiments is: Initial rachitis, complicated by hydrocephalus and a fundamental disturbance of the internal secretion glands: thyroid, hypophysis and perhaps others, resulting in lime condensation, and some secondary symptoms (serous meningitis, atrophy of optic nerve, anemia). Four similar cases are known. Eight plates show the pathologic structure.